HARVARD MEDICAL LIBRARY
IN THE
FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE

Digitized by the Internet Archive
in 2017 with funding from
The National Endowment for the Humanities and the Arcadia Fund

https://archive.org/details/boletindelaasoci6119asoc

OPY 1

SHEEVES



BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

IDIOPATHIC THROMBOCYTOPENIC PURPURA IN CHILDREN 1
Enrique O. Horta, MD, Norman Maldonado, MD, Pedro Juan Santiago, MD and Margarita Cáceres de Costas, MD

RUPTURE OF THE INTERVENTRICULAR SEPTUM AFTER ACUTE MYOCARDIAL INFARCTION 9
Fernando A. Córdova, MD, Juan R. Monserrate, MD, Elí A. Ramírez, MD, MSc (Med.), FACP and Félix M. Reyes, MD

SWEAT ELECTROLYTE CONCENTRATIONS IN PUERTO RICAN CHILDREN.. 17
T. Lawrence Fleisher, MD and A. del C. González Lebrón, BS

INTRAUTERINE CONTRACEPTION WITH THE SAF-T-COIL 33.S ® 21
Study on 100 Cases
J. Blanco Herrera, MD and A. Hernández Torres, MD

INFORME DEL PRESIDENTE 25
J. A. Alvarez de Choudens, MD

HYPOTONIC DUODENOGRAPHY 35
CASE REPORT
José A. Berlingeri, MD and Laszlo Ehrlich, MD, FACP, FACR

IPACTO DE LA DESNUTRICION DEL NIÑO PRE-ESCOLAR EN LA ECONOMIA DE PUERTO RICO 38
APUNTES BREVES
N. A. Fernández López, MD

QUESTIONS AND ANSWERS 40

NOTICIAS 41

THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON
17 APR 1969

VOL. 61 ENERO, 1969 NUM. 1



para esa tos molesta recomiende el nuevo jarabe, sin narcóticos

Cheracol D

dominio efectivo de la tos, sin codeína

Cheracol D con dextrometorfano:

- acción antitusiva igual que con codeína, pero sin efectos secundarios narcóticos indeseables
- afloja las secreciones bronquiales
- refresca y suaviza la garganta
- tiene un agradable sabor a cerezas que lo hace muy popular entre los niños
- puede ser administrado a niños menores de dos años, bajo la vigilancia del médico

Cada onza fluida contiene:

Bromhidrato de dextrometorfano	9/10 gr. (60 mg.)
Cloroformo*	2 grs.
Guayacolato de Glicerilo	1⅕ grs.
Cloruro de Amonio	8 grs.
Tartrato de Antimonio y Potasio	1/12 gr.
Alcohol	3%

con corteza de pino blanco y de cerezo silvestre

*Cierta pérdida de cloroformo es inevitable.

Presentación: en frascos de 2 y 4 onzas.

Upjohn

681 REGISTRADO POR LA OFICINA DE PATENTES DE E. U. A. CHERACOL D PR 3875 2 APRIL 1968

"COPYRIGHT 1968 BY THE UPJOHN COMPANY. SE RESERVAN TODOS LOS DERECHOS"

UPJOHN INTER-AMERICAN CORPORATION/CAPARRA/PUERTO NUEVO

11/18/76 1246 089 4A
54

BOLETIN COLOR 2678
DE LA
ASOCIACION
MEDICA DE
PUERTO RICO

61
1969

Make solidex card.



Otro nuevo descubrimiento de Lakeside



cuando la depresión abruma

NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extrapiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.



Geigy



Regroton®

chlorthalidone 50 mg.
reserpine 0.25 mg.

One Regroton tablet a day usually helps you and your patient bring high blood pressure down and keep it down.

Regroton produces a smooth, long-acting effect that usually reduces both systolic and diastolic pressures. At the same time it often acts to allay anxiety and nervous tension associated with hypertension.

Although Regroton is generally well tolerated, adverse reactions may occur. This drug is contraindicated in mental depression, demonstrated hypersensitivity, and most cases of severe renal or hepatic diseases. For a complete list of side effects, please see the Prescribing Information summarized on the following page.

Regroton®

chlorthalidone 50 mg.
reserpine 0.25 mg.



One Regroton tablet a day usually helps you and your patient bring high blood pressure down and keep it down.

Indications: Hypertension. **Contraindications:** History of mental depression, hypersensitivity, and most cases of severe renal or hepatic diseases. **Warning:** With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has frequently been required and deaths have occurred. Discontinue coated potassium-containing formulations immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur. Discontinue one week before electroshock therapy, and if depression or peptic ulcer occurs. *Use in pregnancy:* Because chlorthalidone may cross the placental barrier and appear in cord blood and thiazides may appear in breast milk, this drug should be used with care in pregnant patients and nursing mothers. When used in women of childbearing age, the potential benefits of the drug should be weighed against the possible hazards to the fetus. Use of chlorthalidone may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. Increased respiratory secretions, nasal congestion, cyanosis and anorexia may occur in infants born to reserpine-treated mothers. **Precautions:** Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs, or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. To avoid hypotension during surgery, discontinue therapy with this agent two weeks prior to elective surgical procedures. In emergency surgery, use, if needed, anticholinergic or adrenergic drugs or other supportive measures as indicated. Because of the possibility of progression of renal damage, periodic kidney function tests are indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated. Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria. Take particular care in cirrhosis or severe ischemic heart disease and in patients receiving corticosteroids, ACTH, or digitalis. Severe salt restriction is not recommended. Use cautiously in patients with ulcerative colitis or gallstones (biliary colic may be precipitated). Bronchial asthma may occur in susceptible patients. **Adverse Reactions:** The drug is generally well tolerated. The most frequent side effects are nausea, gastric irritation, vomiting, diarrhea, constipation, muscle cramps, headache, dizziness and acute gout. Other potential side effects include angina pectoris, anxiety, depression, bradycardia and ectopic cardiac rhythms (especially when used with digitalis), drowsiness, dull sensorium, hyperglycemia and glycosuria, hyperuricemia, lassitude, restlessness, transient myopia, impotence or dysuria, orthostatic hypotension which may be potentiated when chlorthalidone is combined with alcohol, barbiturates or narcotics, leukopenia, aplastic anemia, skin rashes, thrombocytopenia, agranulocytosis, nasal stuffiness, increased gastric secretions, nightmare, purpura, urticaria, ecchymosis, weakness, uveitis, optic atrophy and glaucoma, and pruritus. Eruptions and/or flushing of the skin, a reversible paralysis agitans-like syndrome, blurred vision, conjunctival injection, increased susceptibility to colds, dyspnea, weight gain, decreased libido, dryness of the mouth, deafness, anorexia, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Jaundice, xanthopsia, paresthesia, photosensitization and necrotizing angiitis are possible. **Average Dosage:** One tablet daily with breakfast. **Availability:** Pink, single-scored tablets in bottles of 100 and 1000.
(B) 46-600-C

For details, please see complete prescribing information.

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

RE-6225

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:

Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:

El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:

Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.



Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistémicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.



PIENSE EN SU MEDICO Y PIENSE EN LOS SUYOS

Adquiera Tranquilidad: Ingrese en la Triple S

Nadie es eternamente saludable. Es lógico suponer que, en cualquier momento, algunos de sus familiares —o usted mismo— requerirá atención médica y, quizás, hospitalización.

Como jefe de familia, usted se verá en la obligación de atender esa necesidad con mayor premura que las otras: casa, comida, ropa, vestidos y diversiones.

No espere ese momento; adquiera tranquilidad desde ahora con el plan de protección médico quirúrgico y de hospitalización de la Triple S (SSS). Económico, eficaz y simple.

Por una módica prima mensual —menos de lo que gasta en cosas menos importantes que la salud— usted se protege y protege a los suyos. La Triple S le ofrece servicios médicos, de hospitalización y dentales.

Por eso — le aseguramos— adquirir su tarjeta de la (SSS) es adquirir tranquilidad.

SSS

Miembro de la National Association of Blue Shield Plans

®

IDIOPATHIC THROMBOCYTOPENIC PURPURA IN CHILDREN

Enrique O. Horta, MD
Norman Maldonado, MD
Pedro Juan Santiago, MD
Margarita Cáceres de Costas, MD

Idiopathic thrombocytopenic purpura (ITP) has been described as a disease characterized by low platelets in the peripheral blood, normal or increased number of megakaryocytes in the bone marrow, most of which are not producing platelets, and by the absence of any recognizable cause. Other hematologic parameters are usually normal. The two forms of ITP that have been classically recognized are the acute and the chronic varieties (1). Another clinical form, the acute recurrent, can be considered a variant of the chronic type.

Acute ITP is a self-limited and short lasting disease which usually remits spontaneously or with corticosteroid therapy in a period of 4 to 16 weeks. In children it frequently occurs following viral infections or after vaccinations (2, 3). An occasional patient may have thrombocytopenia for as long as one year (4).

To characterize chronic ITP is sometimes difficult, since some patients with the acute form may have prolonged thrombocytopenia. A significant number of cases with chronic ITP may present initially a clinical picture indistinguishable from acute ITP. Thereafter, they may have intermittent hemorrhagic symptoms or easy bruising, and thrombocytopenia of variable degree. In other patients the disease simply follows an insidious course, with mild symptoms or none, and with variable low platelet counts. Occasional acute exacerbations, with unpredictable bleeding manifestations may occur during the course of the disease. In these patients this symptomatology usually persists for more than a year. Thus, time and recurrences of thrombocytopenia, with or without hemorrhagic symptoms, are the clues for the diagnosis of chronic ITP.

From the Hematology Section of the Department of Medicine and the Department of Pediatrics of the University Hospital, San Juan, Puerto Rico. This study was supported by the NIH Hematology Training Grant No. T1 AM 5302.

Acute recurrent ITP (5) is manifested by intermittent episodes of thrombocytopenic purpura after prolonged periods of clinical remission. Most of these cases present a non-specific illness before the onset of purpura. Whether these patients are mild cases of chronic ITP in whom the preceding infection exacerbates the disease, or whether they are cases of truly recurrent acute ITP, is not certain. The course of each recurrent episode of thrombocytopenia is unpredictable.

Evidence has been presented suggesting that ITP is a clinical syndrome that probably includes more than one disease entity (6). Other studies also suggest that the acute and chronic forms of ITP may be two distinct pathologic conditions (7). Moreover, acute ITP in children seems to be different in many respects from the acute form seen in adults (8).

The management of ITP including the use of corticosteroids and splenectomy, has been the subject of many reports (9-13). There is still controversy as to the choice of therapy, specially in those patients with the acute form of the disease as seen in children (14).

A retrospective evaluation of the clinical picture and response to therapy in forty cases of ITP in the pediatric age group constitutes the subject of this report.

Material and Methods

The medical records of all patients (40) admitted to the Department of Pediatrics of the University (District) Hospital at Río Piedras, Puerto Rico from June 1959 to June 1967, with the diagnosis of idiopathic thrombocytopenic purpura were reviewed and studied. All patients were less than 12 years of age. The tissue slides of the spleen of those patients who underwent splenectomy were reviewed and histopathologic features of other diseases that might account for thrombocytopenia were looked for. The platelet counts were performed by direct methods using the red cell counting chamber. The leukocyte counts, hemoglobin determinations, Coombs' test, total serum proteins, serum protein electrophoresis, VDRL, and the latex fixation tests were performed according to conventional methods (15). The

L. E. cell preparations were done according to the method described by Hargraves (16). A screening test for infectious mononucleosis was done using the "monospot" method (17).

The criteria for thrombocytopenia was a platelet count of less than 100,000 platelets/cu. mm. A response was considered adequate when the platelet count remained above 100,000 platelets/cu. mm, a bone marrow aspiration showing normal or increased number of megakaryocytes not producing platelets, or with a markedly decreased platelet production, normal leukocyte and differential counts, and the absence of recognizable cause for the thrombocytopenia.

The histopathological findings in the spleen were considered "compatible with ITP" when there was sinusoid dilatation and/or congestion, hyperplasia of the lymph follicles, non specific histiocytosis in the absence of systemic disease, and no evidence of granuloma, tumors, cysts, hemangiomas, lymphoma or other recognizable disease (18, 19, 20, 21).

Results

The series includes 22 male and 18 female patients. Their ages ranged from 6 months to 11 years, with an average of 5 years (Fig. 1). All patients were white, except one, who was negro. Acute ITP occurred in 31 (77.5 percent) and chronic ITP in 9 (22.5 percent) of the patients.

An antecedent non-specific illness, usually an upper respiratory infection, occurred within one month before the onset of the thrombocytopenic purpura in 16 patients (40 percent). Fifteen (48.3 percent) of the 31 patients with acute ITP had a preceding illness, whereas only one of the 9 patients with chronic ITP had it.

The most frequent presenting sign and/or symptom was purpura, manifested by petechiae and ecchymoses

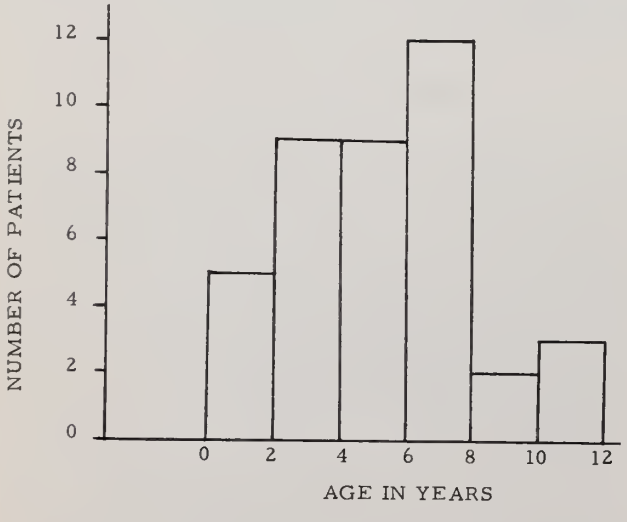


Fig. 1: *Age distribution of ITP in children studied.*

in over 95 percent of the cases. Hemarthroses or signs of intracraneal bleeding were not present in any of the patients. The liver was enlarged in 15 patients (37.5 percent) but no hepatic disease was demonstrated in any of these patients by liver function tests. The clinical significance of the hepatomegaly remains uncertain. The spleen was palpable in 8 cases (20 percent) and enlarged lymph nodes were encountered in 21 (52.5 percent). No major rheumatologic complaints nor signs suggestive of systemic lupus erythematosus (SLE) were found in this series. The results are summarized in Table I.

The hemoglobin on admission ranged from 7.4 gm to 14.2 gm/100 ml, with an average of 11.1 gm/100 ml. The initial platelet count varied from 1,000 to 56,000 platelets/cu.mm, with an average of 20,000 platelets/cu.mm. The average leukocyte count was 10,100 WBC/cu. mm, with a range of 4,900 to 21,000 WBC/cu. mm. Eosinophilia of over 5 percent was found in 15 patients. Nine of them had intestinal parasites and 6 did not have stool examinations. The L. E. cell preparation was performed in 13 patients, at least once, and it was reported negative in all of them. In those patients in whom the latex fixation test, VDRL, total serum proteins, serum protein electrophoresis, Coombs' test, and the "mono test" were performed, no abnormalities were detected. No evidence of hemolytic anemia, azotemia or uremia was found in any of the patients. Microscopic hematuria was reported in 2 patients, but none had gross hematuria. The hematologic results and the distribution of cases are summarized in Tables II and III.

Two of the 31 patients who had acute ITP did not receive therapy and neither of the two had a prodrome. They had an initial platelet count of 40,000 platelets/cu. mm and they were not actively bleeding. Both patients had a spontaneous response in 6 and 17 days, respectively without recurrence. The remaining patients were treated with prednisone in doses ranging from 20 to 150 mg daily.

The series was divided into three groups. Group I included 9 patients with acute ITP treated with 50 mg or less of prednisone daily. The average body weight for this group was 16.5 Kg and the average dose of prednisone given was 35 mg daily (2 mg/Kg). Their ages ranged from 6 months to 7 years. Five patients were males and 4 were females. Three patients had a prodromal stage preceding the onset of purpura. The average time for the platelet count to rise over 100,000 platelets/

TABLE I: CLINICAL DATA IN CHILDREN WITH ITP

Clinical and Physical Findings	Acute ITP	Chronic ITP	Total	Percentage
Number of patients	31	9	40	-
Prodromes	15	1	16	40
Petechiae	30	9	39	97.5
Ecchymoses	29	9	38	95
Epistaxis	5	3	8	20
Gingivorrhagia	8	4	12	30
Hematemesis	1	0	1	2.5
Melenas	4	3	7	17.5
Hematochezia	3	3	6	15
Hematuria	2	0	2	5
Cerebral hemorrhage	0	0	0	0
Hepatomegaly	11	4	15	37.5
Splenomegaly	5	3	8	20
Adenopathy	17	4	21	52.5
Arthralgias	2	2	4	10

TABLE II: CLINICAL AND LABORATORY DATA IN CHILDREN WITH ACUTE ITP

Patient	Age	Sex	Hemoglobin g/100 ml	Platelets/cu.mm	WBC/cu.mm
1	18 mo.	M	9.7	40,000	11,300
2	7 yrs.	M	8.0	40,000	8,500
3	6 mo.	M	12.4	12,000	11,000
4	2 yrs.	F	11.8	8,000	21,200
5	2.5 yrs.	F	10.2	4,000	5,300
6	3.5 yrs.	M	10.2	6,000	8,800
7	5 yrs.	F	12.8	50,000	9,400
8	5 yrs.	F	8.9	16,000	13,900
9	7 yrs.	M	9.4	6,000	10,000
10	7.5 yrs.	M	11.6	7,000	9,100
11	7 yrs.	M	7.6	10,000	12,400
12	18 mo.	M	8.7	56,000	6,700
13	2 yrs.	F	10.0	4,000	11,900
14	2.5 yrs.	M	11.4	8,000	10,000
15	3 yrs.	F	10.0	2,000	9,000
16	3 yrs.	M	11.7	23,000	6,400
17	4 yrs.	M	8.2	40,000	15,000
18	4 yrs.	M	14.2	14,000	7,900
19	4 yrs.	M	12.0	1,000	5,000
20	4 yrs.	F	12.0	15,000	7,200
21	4.5 yrs.	M	7.4	14,000	11,000
22	5 yrs.	M	11.6	49,000	14,000
23	5 yrs.	M	11.1	2,000	14,300
24	6 yrs.	F	12.9	26,000	7,300
25	6 yrs.	F	9.8	47,000	8,100
26	6 yrs.	F	11.0	15,000	6,500
27	6 yrs.	F	13.8	3,000	13,500
28	7 yrs.	F	12.7	20,000	6,400
29	7 yrs.	M	10.2	16,000	8,900
30	9 yrs.	M	10.3	14,000	6,700
31	10 yrs.	M	9.8	8,000	7,600
Average	4.8 yrs.	M-19 F-12	10.7	19,000	9,800

Initial hematologic evaluation of children with the acute form of ITP. M male, F female. Patients 1 and 2 received no therapy. Patients 3 to 11 were treated with 50 mgm of prednisone daily or less. Patients 12 to 31 received 60 mg of prednisone daily or more.

TABLE III: CLINICAL AND LABORATORY DATA IN CHILDREN WITH CHRONIC I. T. P.

Patient	Age	Sex	Hemoglobin g/100 ml	Platelets/cu. mm	WBC/cu. mm
32	14 mo.	F	13.4	8,000	12,600
33	16 mo.	F	10.0	38,000	7,500
34	3 yrs.	F	10.6	7,000	7,600
35	3 yrs.	F	10.8	4,000	4,900
36	6 yrs.	F	10.6	20,000	5,500
37	7 yrs.	M	12.0	156,000 *	13,500
38	9 yrs.	F	15.0	40,000	6,300
39	10 yrs.	M	10.3	50,000	17,200
40	11 yrs.	M	12.0	12,000	8,400
Average	5.7 yrs.	M-3 F-6	11.6	22,000	10,400
All Cases	5 yrs.	M-22 F-18	11.1	20,000	10,100

Initial hematologic evaluation of children with chronic ITP. M- male, F- female.

** - Patient on treatment when admitted to the hospital. All these patients were treated with prednisone and later splenectomized.*

cu. mm after therapy was 14 days, with a range of 7 to 33 days.

Group II included 20 patients with acute ITP treated with 60 mg or more of prednisone daily. Their average body weight was 19 Kg and the average dose of prednisone for this group was 75 mg daily (3 mg/Kg) and the patients' age varied from 18 months to 10 years. Eleven patients were males and 9 were females. Twelve had a prodrome. The number of days required for the platelet count to rise over 100,000/cu. mm varied from 8 to 89 days, with an average of 23.6 days. These patients took 9.6 days more to respond than those treated with a smaller dose of prednisone. Both groups combined responded in an average of 20.1 days and received an average dose of 60 mg of prednisone daily.

Group III included 9 patients with chronic ITP, all of whom were treated with variable amounts of prednisone and were later splenectomized. Their average body weight was 20 Kg. The average dose of prednisone prior to splenectomy was 75 mg daily (3.75 mg/kg) with a range of 20 to 150 mg. The patients' age varied from 14 months to 11 years. Six were females and 3 were males. Only one patient had a prodromal stage preceding the purpura. The average number of days for the platelet count to rise over 100,000 platelets/cu. mm, at least once, was nearly 10 months, varying from one week to nearly 32 months. All these patients were splenectomized from 6 weeks to 46 months after the diagnosis of ITP, with an average of 17 months. Four of the splenectomized patients are considered completely cured, since no relapse of thrombocytopenia has occurred 36 to 72 months after splenectomy. The other 5 patients had a good clinical response with no further episodes of significant bleeding since the operation, but thrombocytopenia of variable degree has occurred. Only one of these 5 cases still requires minimal doses of prednisone (15 mg daily) to maintain an adequate platelet count. These 5 patients have had a partial, but good response to splenectomy. The effectiveness of splenectomy in this group was 88.8 percent. The morbidity of the operation was 33.3 percent. One patient developed bilateral bronchopneumonia shortly after splenectomy, while receiving corticosteroids. Two cases developed transient thrombocytosis of over 1 million platelets/cu. mm after splenectomy. One of them was treated with heparin without further complications. No oper-

TABLE IV: EVALUATION OF THERAPY IN CHILDREN WITH ITP

Acute ITP	No.	Age	Time for Response *	Average time for Response	Dose of Steroids	Time to Splenectomy
No therapy	2	18 mo. - 7 yrs.	6 - 17 days	11.5 days	-	-
Group I	9	6 mo. - 7 yrs.	7 - 33 days	14 days	50 mgm or less	-
Group II	20	18 mo. - 10 yrs.	8 - 89 days	23.6 days	60 mgm or more	-
Chronic ITP	9	14 mo. - 11 yrs.	1 wk. - 32 mo.	10 mo.	20-150 mgm.	6 wks. - 48 mo.
Totals and Average -	40	5 yrs.	-	20.1 days (acute cases)	-	17 mo.

** - A response was considered adequate when the platelet count was above 100,000 platelets/cu. mm.*

ative or post-operative deaths occurred. The results of the evaluation of therapy are summarized in Table IV.

Discussion

According to Mauer (22), ITP is the most frequent form of thrombocytopenic purpura in children. It includes mostly the two forms of the disease: the acute and the chronic. The acute recurrent form is much less frequent. Acute ITP is the form most frequently encountered in children and it comprises 80 percent to 85 percent of all cases. Both sexes are equally affected. Fifty to 80 percent of the patients present a clear history of an antecedent infection occurring 1 to 4 weeks before the onset of purpura (6, 14). The purpuric manifestations are usually of sudden onset and of rapid development, varying from a few petechiae and ecchymoses to generalized purpuric lesions. The spleen may be palpable in 8 percent to 20 percent of cases (8, 23). The disease follows a self-limited course lasting a few weeks to several months, and rarely up to one year.

Most of the children in our series were below the age of 8 years and there was no predominant sex in the whole group. Although our series is small, it agrees with the age and sex distribution reported in larger groups of patients (6, 14, 23, 24). Seventy eight percent of our patients had the acute form of ITP, 20 percent had splenomegaly and 40 percent gave history of a preceding infection. These results are in general agreement with those reported by Lusher (14), Baldini (6), and Choi (23). Only one patient out of nine had history of a preceding infection in the chronic group, in contrast with fifteen out of thirty one patients with acute ITP. This data and other reports confirm the impression that the history of a mild infection, usually of the upper respiratory tract, preceding the onset of purpura, constitutes one of the best indications that the patient with ITP is likely to follow a self-limited course.

There is no complete agreement regarding the use of corticosteroids in the treatment of acute ITP in children. According to experienced investigators (4, 14, 25) corticosteroids are not strictly needed in the treatment of acute ITP in children because the disease is short lasting and severe bleeding is not the rule. Several reports (14, 22, 23) show that there is no significant difference in response and complications between the patients treated with corticosteroids and those who do not receive therapy. Two of our patients did not receive any therapy. Both patients had a platelet count of 40,000/cu. mm and they were not actively bleeding. They responded spontaneously within one to three weeks without any complications. The rest of our patients with

acute ITP were treated with corticosteroids. One group received 50 mg or less of prednisone daily, and the other group was treated with higher doses. There was no significant difference between these two groups. Moreover, those patients who received higher doses of prednisone took an average of nearly ten days more to respond than those who were treated with smaller doses. This data suggests that in the treatment of acute ITP in children high doses of prednisone are not needed.

The experience in this series suggests that acute ITP in children may be managed effectively, once the diagnosis is established, with a dose of 1 to 2 mg of prednisone per kilogram of body weight daily. The patient then should be observed for a period of four to twelve weeks with frequent platelet counts. If there is significant anemia (below 10 gm/100 ml) whole fresh blood or packed red blood cells are indicated. If bleeding can not be controlled, platelet transfusions should be given. The great majority of patients (84 percent in our series) will have an adequate response in less than one month. Only when the patient's life is endangered, or when there are progressive central nervous system manifestations indicative of intracraneal hemorrhage, should splenectomy on an emergency basis be performed. When the platelet count reaches 100,000/cu. mm and there is no evidence of active bleeding, the steroids are tapered off progressively, and the patient is followed at regular intervals for one and a half to two years.

About 10 percent to 20 percent of all cases of ITP in children will follow a chronic course. Some patients will initially have a clinical picture indistinguishable from acute ITP. Thereafter they will become chronic as evidenced by persistent or recurrent thrombocytopenia. Acute exacerbation may occur sometimes related to, or precipitated by intercurrent infections, and more frequently without apparent cause. The response to any modality of therapy in chronic ITP is unpredictable. Some patients will have an adequate outcome with more or less prolonged remissions with corticosteroids. Others will respond with a slight increase in the number of platelets, but never reach normal levels. Some will not respond at all. According to other reports (13, 25, 26) and to our results and experience, most patients with chronic ITP will invariably need splenectomy. Splenectomy for chronic ITP in children has been reported to have an effectiveness of 60 percent to 85 percent (4, 24, 25). If the platelet count after the operation is not entirely normal, but remains above 50,000/cu. mm and the patient is free of signs and symptoms, the operation can be considered successful, although only partially curative from the hematologic point of view. Even those patients who do not have what can be considered an adequate response are benefited by the operation, because most of them will need a smaller dose of corticosteroids (10 or 15 mg daily) to maintain an adequate platelet count and to keep them free of hemorrhagic manifestations. The effectiveness of splenectomy in our series (8 complete or adequate responses out of 9 splenectomized patients) is similar to that obtained by other investigators (13, 24, 26). The great majority of children with chronic ITP are benefited by splenectomy, which at the present time has minimal risks. This operation is one of the best tools in the treatment of chronic ITP in children, since spontaneous remissions are rare and corticosteroids are not curative.

The results obtained at our hospital during the past years suggest that patients with chronic ITP presenting a similar picture to that seen in acute ITP, can be managed initially the same way as those with the acute form of the disease. Nearly 60 percent to 70 percent of the patients will have an initial adequate response to corticosteroid therapy (25). If at the end of three to four months of therapy the platelet count remains above 100,000 platelets/cu. mm, the steroids may be discontinued and the patient is observed closely. If a relapse occurs another trial with corticosteroids can be given. If there is no response or the thrombocytopenia recurs again, with or without purpura, splenectomy should be performed. Usually about six or more months elapse from the onset of the disease until the splenectomy. After splenectomy a prompt rise in platelets occurs within a few hours to three or four days after the operation. The platelet count may go up as high as 3 million platelets/cu. mm. By the tenth post-operative day a gradual decline in the platelet count to normal levels usually follows. If thrombocytosis of over one million platelets/cu. mm occurs, heparinization should be instituted to prevent thromboses.

A small group of patients will not respond to splenectomy and may fail to respond to further corticosteroid therapy. In these instances immuno-suppressive drugs deserve a therapeutic trial (27, 28). The drugs mostly used are 6-mercaptopurine, azathioprine (Imuran), and amethopterin (Methotrexate). It must be born in mind that these medications are antimetabolites and can be toxic to the patient. The

use of these agents is recommended only where careful clinical and laboratory supervision can be carried out closely.

The development of systemic lupus erythematosus (SLE) following chronic ITP, before or after splenectomy, can be seen in children although rarely (29, 30). For this reason, diagnostic criteria of SLE such as L. E. cell preparations and antinuclear antibodies test, and other immunologic abnormalities as hyperglobulinemia, false positive VDRL, and Coombs' test, should be looked for in any patient with ITP, specially patients with the chronic variety. By these means the presence of latent SLE manifested by thrombocytopenic purpura can be detected.

It must be remembered that the diagnosis of ITP is one of exclusion. Other diseases which may cause thrombocytopenia such as acute leukemia, malignant lymphomas and still others, must be ruled out. An extensive clinical history should be recorded and a careful physical examination completed. Adequate bone marrow aspirations and examination of peripheral blood smears are of vital importance.

The clinician should make every effort to differentiate the acute from the chronic form of this disease since the implications for treatment, prognosis, and curability in the two forms are different.

Summary

The medical records of forty children with ITP were studied regarding the clinical course and the effectiveness of therapy with corticosteroids and/or splenectomy. Thirty one patients had acute ITP. There was no sex predominance. A non specific preceding illness occurred in fifteen of these patients. Two patients did not receive any therapy and both recovered spontaneously. The other twenty nine patients were treated with prednisone and 84 percent of them had an adequate response within two to four weeks from the onset of therapy. Apparently, the response of the thrombocytopenia to corticosteroid therapy is not related to the dose given. High doses are not warranted. A dose of 1 to 2 mg. of prednisone per kilogram of bodyweight seems to be sufficient in pediatric patients. Intracraneal bleeding, except when associated to trauma, is apparently a rare event in ITP and was not observed in our patients.

Nine patients had chronic ITP. Only one had a prodromal illness prior to the onset of purpura. All these patients had an equivocal response to corticosteroid therapy and all were splenectomized. Splenectomy was greatly beneficial in eight of our patients and resulted in marked improvement in the other one. Thrombocytosis after splenectomy may occur and when the platelet count is over one million platelets/cu. mm treatment with heparin is recommended. None of our patients developed systemic lupus erythematosus.

Resumen

Un grupo de 40 niños con el diagnóstico de púrpura trombocitopénica idiopática (PTI) fue sometido a evaluación clínica y se repasó la efectividad del tratamiento con corticoides y/o esplenectomía. Treinta y un pacientes se consideraron casos de PTI aguda y no hubo predominancia en cuanto al sexo. Se observaron pródromos no específicos en quince de estos pacientes. Dos pacientes no recibieron tratamiento alguno y ambos recuperaron espontáneamente. Los otros veintinueve pacientes fueron tratados con prednisona y el 84 porciento de ellos tuvieron una respuesta adecuada alrededor de dos a cuatro semanas a partir del comienzo del tratamiento. La respuesta de la trombocitopenia al tratamiento con corticoides no está aparentemente en relación directa con la dosis dada y dosis altas no son recomendables. Una dosis de prednisona de 1 a 2 mg. por kilogramo de peso parece ser suficiente para obtener una respuesta en cualquier paciente pediátrico. La hemorragia intracerebral, excepto cuando está asociada a traumatismo, parece ser una complicación rara en PTI.

Nueve pacientes fueron considerados como casos de PTI crónica. De estos pacientes, sólo uno tuvo pródromos antes de la púrpura. Todos estos pacientes tuvieron una respuesta errática al tratamiento con corticoides y todos fueron sometidos a esplenectomía. La esplenectomía fue de gran beneficio en 8 de nuestros pacientes y resultó en gran mejoría en otro de ellos.

Trombocitosis puede ocurrir después de esplenectomía y cuando el contaje de plaquetas sobrepasa un millón de plaquetas/mm. cu, está indicado el tratamiento con heparina. Ninguno de nuestros pacientes desarrolló lupus eritematoso diseminado.

References

1. *Wintrobe, M. M.:* Clinical Hematology (6th ed.) Philadelphia, Lea and Febiger, 1966, pp. 886-912.

2. *Ferguson, A. W.:* Rubella as a cause of thrombocytopenic purpura, Pediatrics 25: 400, 1960.
3. *Bayer, W. et al:* Purpura in congenital and acquired rubella, New Eng. J. Med. 273: 1362, 1965.
4. *Schulman, I.:* Diagnosis and treatment: Management of idiopathic thrombocytopenic purpura, Pediatrics 33: 979, 1964.
5. *Dameshek, W., Ebbe, S., Greenberg, L. and Baldini, M.:* Recurrent acute idiopathic thrombocytopenic purpura, New Eng. J. Med. 269: 647, 1963.
6. *Baldini, M.:* Idiopathic thrombocytopenic purpura, New Eng. J. Med. 274: 1301, 1260, 1966.
7. *Shulman, N. R., Marder, V. J. and Weinrach, R. S.:* Similarities between known antiplatelet antibodies and the factor responsible for thrombocytopenia in idiopathic purpura, Ann. N. Y. Acad. Sci. 124: 499, 1965.
8. *Dameshek, W.:* Idiopathic thrombocytopenic purpura: A tricky disease, Med. Clin. N. Amer. 46: 1135, 1962.
9. *Carpenter, A. G., Wintrobe, M. M., Fuller, E. A., Haut, A. and Cartwright, G. E.:* Treatment of idiopathic thrombocytopenic purpura, J. A. M. A. 171: 1911, 1959.
10. *Doan, C. A., Bouroncle, B. A. and Wiseman, B. K.:* Idiopathic and secondary thrombocytopenic purpuras: Clinical evaluation and study of 381 cases over a period of 28 years, Ann. Intern. Med. 53: 861, 1960.
11. *Walker, J. H. and Walker, W.:* Idiopathic thrombocytopenic purpura in childhood, Arch. Dis. Child. 36: 649, 1961.
12. *Sandusky, W. R., Leavell, B. S. and Benjamin, B. I.:* Splenectomy, Ann. of Surg. 159: 695, 1964.
13. *Block, G. E. et al:* Splenectomy for idiopathic thrombocytopenic purpura, Arch. of Surg. 92: 484, 1966.
14. *Lusher, J. M. and Zuelzer, W. W.:* Idiopathic thrombocytopenic purpura in childhood, Pediatrics 68: 971, 1966.
15. *Page, L. B. and Culver, P. J.:* A syllabus of laboratory examination in clinical diagnosis, Revised edition, Cambridge, Massachusetts Harvard University Press, 1962. pp. 27-51, 229, 234-235, 240-243, 256-257, 455-457.
16. *Hargraves, M. M.:* Production in vitro of L. E. cell phenomenon: Use of normal bone marrow elements and blood plasma from patients with acute disseminated lupus erythematosus, Proc. Staff Meet. Mayo Clin. 24: 234, 1949.
17. Monospot-Slide test for infectious mononucleosis: Ortho Diagnostics. Raritan, N. J.
18. *Ferrand, B.:* The spleen in idiopathic thrombocytopenic purpura, Alg. Med. 63: 1025, 1959.
19. *Oliva, H., Valle, A. and Jiménez-Díaz, C.:* The spleen in idiopathic thrombocytopenic purpura, Rev. Clin. Esp. 75: 223, 1959.
20. *Jorizzo, A. A. and Simon, M. A.:* Histiocytosis of the spleen in idiopathic thrombocytopenic purpura, Canad. Med. Ass. J. 89: 226, 1963.
21. *Dollberg, L. et al:* Lipid-laden histiocytes in the spleen in thrombocytopenic purpura, Amer. J. Clin. Path. 43: 16, 1965.
22. *Mauer, A.:* Purpuras in childhood, disease a month (Year Book Medical Publishers, Inc., Chicago). October 1966.
23. *Choi, S. I. and McClure, P. D.:* Idiopathic thrombocytopenic purpura in childhood. Canad. Med. Ass. J. 97: 562, 1967.
24. *Smith, C. H.:* Blood diseases of infancy and childhood. The C. V. Mosby Co. St. Louis, Mo., second edition, pp. 696-709, 1966.
25. *Baldini, M. and Ebbe, S.:* Platelet disorders and their management, Med. Clin. N. Amer. 46: 1349, 1962.
26. *Bunting, W. L. and Campbell, D. C.:* Idiopathic thrombocytopenic purpura. Arch. Int. Med. 108: 733, 1961.
27. *Schwartz, R. S.:* Alteration of immunity by antimetabolites. Presented at the 16th annual symposium on fundamental cancer research, at the University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, Texas, 1962.
28. *Schwartz, R. S.:* Immunosuppressive drugs. Progr. Allergy, 9: 246, 1965.
29. *Rabinowitz, Y. and Dameshek, W.:* Systemic lupus erythematosus after "idiopathic" thrombocytopenic purpura: A review. A study of systemic lupus erythematosus occurring after 78 splenectomies for idiopathic thrombocytopenic purpura, with a review of the pertinent literature. Ann. Intern. Med. 52: 1, 1960.
30. *Best, W. R. and Darling, D. R.:* A critical look at the splenectomy-SLE controversy. Med. Clin. N. Amer. 46: 19, 1962.

RUPTURE OF THE INTERVENTRICULAR SEPTUM AFTER ACUTE MYOCARDIAL INFARCTION

Fernando A. Córdova, MD
Juan R. Monserrate, MD
Elí A. Ramírez, MD, MSc(Med.), FACP
Félix M. Reyes, MD

Sudden death due to rupture of the free ventricular wall occurs in approximately five percent of the cases of acute myocardial infarction (1). In contrast, rupture of the interventricular septum is much less frequent, occurring only in about 0.5 to one percent of the cases (2).

Since surgical intervention and correction is technically feasible, and may become practical in the foreseable future, it is important that a correct diagnosis be made as early as possible.

The following are two cases of acute myocardial infarction complicated by rupture of the interventricular septum. The cases are presented to illustrate the classical clinical, electrocardiographic and phonocardiographic findings of this condition.

Case Reports

Case 1:

A 72-year old male was admitted to the Medical Service on December 29, 1967 complaining of upper abdominal pain of three days duration. The patient had been in his usual state of health until three days prior to admission. At that time he overexerted himself while trying to put out a small fire in his garden and developed a sensation of high abdominal discomfort of moderate intensity with slight transitory shortness of breath. He remained in bed over the next two days, during which the pain persisted. The day prior to admission he was slightly improved and went about his usual activities. At noon on the day of admission, following a heavy meal, the abdominal pain became intense, he had a profuse cold diaphoresis, became pale, dizzy, and slightly short of breath, and was brought to the hospital emergency room soon thereafter.

The patient had been previously admitted in 1965 for repair of an inguinal hernia. At that time, he presented no cardiac complaints or abnormal findings. Blood pressure was 118/60 mm Hg. An electrocardiogram was normal. He underwent hernia repair uneventfully.

Physical examination at the time of admission revealed an elderly male looking uncomfortable, but alert and cooperative. The blood pressure was 110/70 mm Hg. The pulse rate 120 per minute and regular. He was afebrile. The neck veins showed distention and there was hepatojugular reflux. The chest showed increased antero-posterior diameter, generalized hyperresonance to percussion, and a few moist inspiratory rales in the left base posteriorly. The cardiac silhouette did not appear enlarged. A systolic thrill was present in the fourth intercostal space at the left sternal border. A grade IV/VI rough systolic murmur was heard at this area. It was much less intense over the rest of the precordium and the axilla. It was not transmitted to the neck vessels. No gallop or third sounds were heard at this time. The abdomen was held in slight voluntary rigidity over the upper quadrants and epigastrium. The liver was percussed to about 3 cm below the right costal margin and it was tender to pressure. There was slight bilateral pretibial pitting edema. The peripheral pulses were present symmetrically, although the arteries were sclerotic.

Admission laboratory work showed a white blood cell count of 16,027 per cu. mm with 77 percent neutrophiles, 5 percent bands. Hematocrit was 40 percent; hemoglobin, 11.8 gm percent. Blood urea nitrogen was 18 mg percent. A chest film taken on admission showed elevation of both diaphragmatic leaves, presumably because of incomplete inspiration. The lung fields were clear. There was calcification of the aortic knob, but the cardiac silhouette was otherwise normal. An electrocardiogram taken on admission showed Q waves in leads 2, 3, AVF, V_5, V_6, with ST elevation in leads 2, 3, V_2 to V_5 consistent with a diaphragmatic wall infarction of undetermined age and a recent anterior wall myocardial infarction (Fig. 1).

The initial impression was acute myocardial infarction with predominantly right congestive heart failure and ruptured interventricular septum. He was started on the usual regime for an acute coronary occlusion, including analgesics, bed rest, and anticoagulants. He was also digitalized and given a mercurial diuretic. On the second hospital day he reported improvement of the pain, but the tachycardia and the venous and hepatic congestion persisted in spite of the therapy given. The serum glutamic oxalacetic transaminase was 50 units. On the morning of the third hospital day, the patient had a generalized seizure, accompanied by hypotension. The electrocardiogram taken at this time is shown in Fig. 2. The ventricular rate was about 155 per minute, and the atrial rate about 160 per minute. Both rhythms were regular and independent without capture. Paroxysmal

From the Medical and Laboratory Service, Veterans Administration Hospital, San Juan, Puerto Rico and the Department of Medicine, University of Puerto Rico School of Medicine.

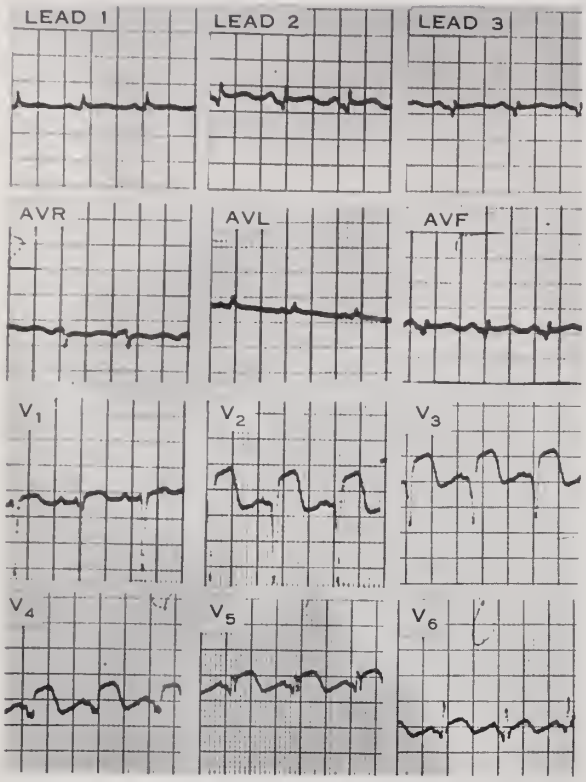


Fig. 1: *Case 1. Admission electrocardiogram showing Q waves in leads 2, 3, AVF, V_5, V_6, with ST elevation in leads 2, 3, V_2 to V_5 consistent with a diaphragmatic wall infarction of undetermined age and a recent anterior wall myocardial infarction.*

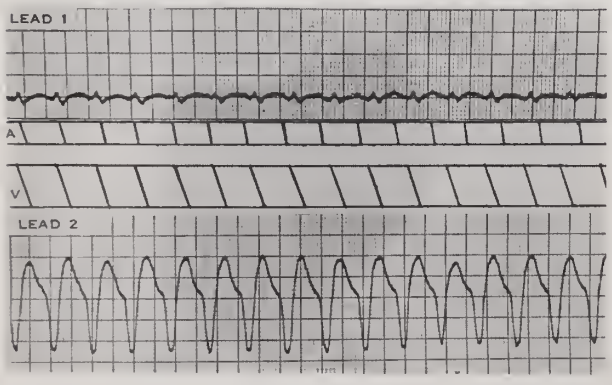


Fig. 2: *Case 1. Leads 1 and 2 are shown. As can be seen in lead 1 and its schematic representation ("A" shows the atrial beats, and "V" the ventricular beats) the ventricular rate is 155 per minute, and the atrial rate is 160 per minute. Both rhythms are regular without capture. Paroxysmal atrial tachycardia, atrioventricular block, and ventricular tachycardia are present.*

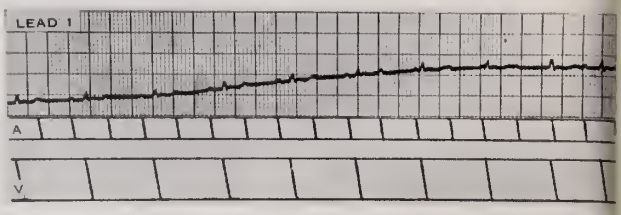


Fig. 3: *Case 1. Tracing of lead 1 shows paroxysmal atrial tachycardia at 160 per minute, atrioventricular block, with ventricles beating at 95 per minute from a main stem pacemaker. (The last ventricular beat in the tracing arrives prematurely and may represent an instance of atrioventricular conduction during a supernormal phase of AV node refractoriness).*

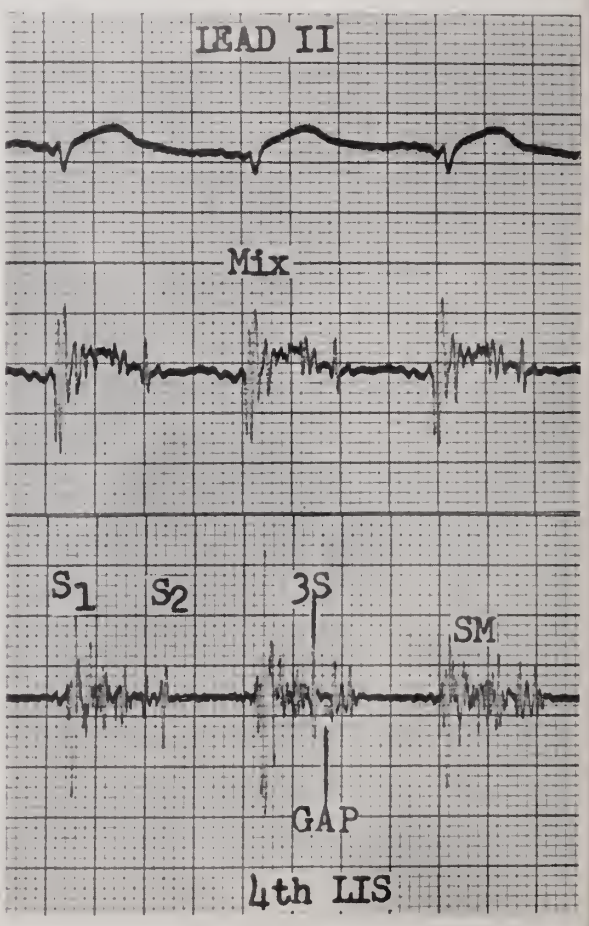


Fig. 4: *Case 1. Phonocardiogram of case 1 done on 5th hospital day. Tracing was made on a Sanborn 1506A heart sound amplifier at a low frequency cut-off of 50 H_z. "Mix"-Electrocardiogram with superimposed phonocardiogram over the apex. "S_1" - First heart sound; "S_2" - second heart sound; "3S" - systolic click; "SM" - systolic murmur; "GAP" - silent area prior to the split second sound; "4th LIS" - fourth left intercostal space.*

atrial tachycardia, atrioventricular block, and ventricular tachycardia were diagnosed. The patient was given an additional 0.4 mg of lanatoside C intravenously, and later 0.5 gm of procaine amide intravenously. Shortly after these drugs, the rhythm converted as shown on Fig. 3. The atrial rate was still 160 per minute. The atrioventricular block persisted and the ventricular rate was then about 95 per minute, with a main stem pacemaker. Sinus rhythm, as well as a return to his previous blood pressure levels were again established within a few hours after this episode, and the patient produced an adequate urine output during that day. He was kept on digitalis and procaine amide. After this arrhythmia, the serum glutamic oxalacetic transaminase rose to 76 units. The electrocardiograms showed now more pronounced ST elevation in leads 2, 3, and AVF. Although the pulse rate remained in the 70-80 per minute range, the venous distention, hepatomegaly and edema persisted. He became anorectic and oliguric, and the blood urea nitrogen rose to 55 mgm percent by the fifth hospital day. At this time the murmur was noted to be louder, and the thrill covered a wider area. A systolic click and constant splitting of the second sound were also heard. A phonocardiogram was done at this time (Fig. 4).

The patient continued in refractory congestive failure and on the eighth hospital day developed pulmonary edema. Vigorous treatment for acute left ventricular failure was unsuccessful and the patient expired within four hours after the onset of this episode, ten days after the initial symptoms.

Pathology: The heart weighed 340 grams. The epicardium was smooth and glistening except in the lower portion of the left ventricle where it was congested and covered with a fibrinopurulent exudate. Exposure of its chambers disclosed a large infarct involving the distal half of the anterior wall of the left ventricle and septum and approximately the distal third of the posterior wall. The myocardium was atrophic in the affected area with thinning of the ventricular wall where it was dilated forming an aneurysmal-like dilatation 4.5 x 2.5 cm in area. There was a mural thrombus at the apex with extension of the thrombotic process to cover practically the dilated portion of the ventricle underneath the area of infarction. There was a perforation in the septum 2.5 cm from the apex and 5 cm from the upper border of the septal wall (Fig. 5). The perforation was rimmed by a thrombotic membrane. The upper portion of the wall of the left ventricle exhibited fine diffuse fibrosis. The left atrium and right chambers of the heart were not remarkable. The valves were of normal appearance and structure. The ostium of the right coronary artery was practically reduced to a pin-head size by an atherosclerotic plaque and that of the left coronary artery was only moderately reduced in caliber. The coronary arteries exhibited severe atherosclerosis with narrowing of their lumens with calcifying changes in the left coronary artery. None of the coronary arteries showed thrombosis.

Histologic sections from the septum showed hyaline necrosis of the myocardium. The necrotic process was also observed in the trabeculae carnae of both ventricles. The stroma of the affected myocardium was edematous and showed the ingrowth of capillaries, fibroblasts and an infiltrate with lymphocytes, macrophages and fewer neutrophiles. Necrotic muscle bundles were also encountered in scars from a preceding infarction of the septum associated with a similar leukocytic infiltrate. The myocardial necrosis was more intense in the area of the perforation. The margins of the rupture were ragged and in places covered with thrombotic material. Sections from the anterior and posterior walls of the left ventricle in the affected area showed an essentially similar recent and old infarction. A section from the apical area included a mural thrombus set upon a thickened endocardial membrane. The left and right coronary arteries showed severe atherosclerosis without thrombosis. Histologically this myocardial infarction had an estimated age of 10 days.



Fig. 5: *Case 1. Ruptured interventricular septum 2.5 cm from the apex and 5 cm from the upper border of the septal wall.*

Case 2:

A 94-year old veteran was brought by his family to the hospital complaining of pain along the right shoulder and upper chest. Six days prior to admission the patient had been observed by his relatives to complain of fullness in the upper abdomen and some shortness of breath. He had been anorectic, kept to bed and appeared to have some discomfort breathing at night. The night prior to admission he complained of pain in the upper chest and right shoulder posteriorly. This became very intense, and the patient was then brought to the hospital.

The patient had been admitted to the hospital several times previously chiefly for treatment of a chronic pyelonephritis. Impaired renal function with mild azotemia had

long been present. A grade II soft apical systolic murmur had been consistently heard since his first admission in 1959. Electrocardiograms had shown a pattern of left ventricular hypertrophy, with a small W wave in lead 3 suggestive of an old inferior wall myocardial infarction. Symptoms of cardiac decompensation led to digitalization in 1964. At the time of his last prior admission, July 1967, his blood pressure was 160/90 mm Hg and his murmur and electrocardiogram were unchanged from previous admissions.

On admission, the patient appeared acutely ill, being cold and clammy, with cyanotic nail beds. He did not appear dyspneic and was drowsy but responsive. The blood pressure was 70/60 mm Hg. The pulse was irregular at a rate of 40-60 per minute. There were prominent and distended neck veins. The lung fields were clear. There was a grade II apical systolic blowing murmur. A grade IV harsh systolic murmur was also present, loudest in the fourth intercostal space to the left of the sternum. It was heard all over the sternum to the right, but did not transmit well to other areas. A systolic thrill at the fourth intercostal space was noted shortly after admission. The liver was felt one and a half cm below the right costal margin; it was not tender to pressure. Considerable bilateral pitting ankle edema was present.

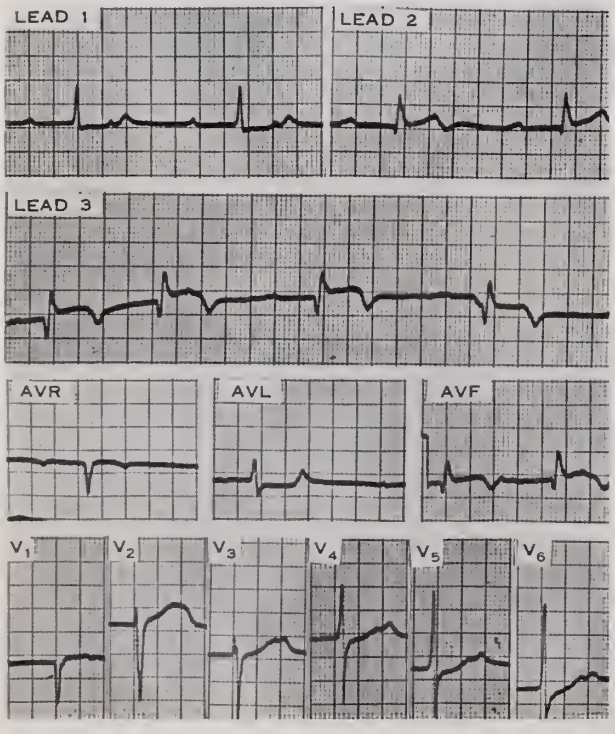


Fig. 6: *Case 2. Admission electrocardiogram showing Q waves, slight ST elevation, and T wave inversion in leads 2, 3, AVF consistent with a diaphragmatic wall infarction. A variable atrioventricular block is present, with a ventricular rate of 45 per minute to an atrial of 90 per minute. The 2:1 block is interrupted by occasional captures (leads 3, AVF).*

Laboratory work showed a hemoglobin of 12.1 g percent and a white blood cell count of 10,400 per cu. mm with 77 percent neutrophiles and 3 percent bands. The serum glutamic oxalacetic transaminase was 106 units. The admission electrocardiogram, shown on Fig. 6, was consistent with a recent diaphragmatic wall infarction. A variable AV block was present. Subsequently, the rhythm changed to a Wenckebach type of block (Fig. 7). The phonocardiogram is shown on Figure 8.

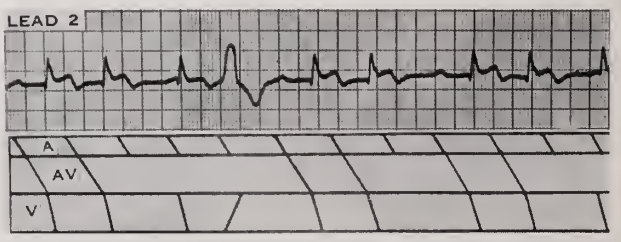


Fig. 7: *Case 2. Tracing of lead 2 shows the atrial ("A") beating at a rate of 110 per minute. The first PR interval measures .36 sec., the second .40 sec. The third atrial beat is blocked, following which an atrial beat and a ventricular complex of main stem origin are recorded simultaneously. A premature beat of right ventricular origin obscures the fifth atrial beat, after which the Wenckebach sequence is resumed.*

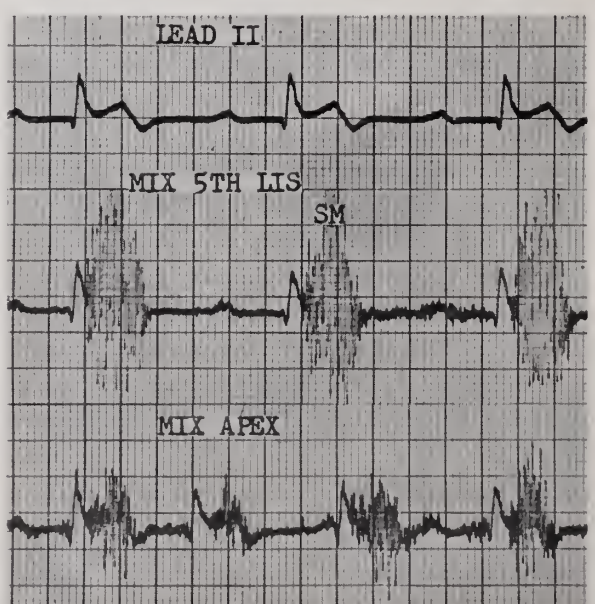


Fig. 8: *Case 2. Phonocardiogram done on the day of admission. On Sanborn 1506A heart sound amplifier with a low frequency cut-off at 250 H_z. "Mix 5th L.I.S." - Lead II of the electrocardiogram with superimposed phonocardiogram over the left 5th intercostal space. "SM" - systolic murmur. "Mix apex" - Lead II of the electrocardiogram with superimposed phonocardiogram over the apex. A 2:1 atrioventricular block is present in the two upper tracings, and a Wenckebach rhythm in the bottom tracing.*

A diagnosis of ruptured interventricular septum secondary to an acute myocardial infarction was made. The patient received supportive treatment, but remained hypotensive and anuric, expiring about twenty hours after admission to the ward.

Pathology: The heart was moderately enlarged and weighed 520 grams. The epicardium was spotted with many hemorrhages being more numerous along the coronary sinuses. Exposure of the chambers of the heart disclosed hypertrophy and moderate dilatation of the left ventricular cavity. In the upper half of the posteroseptal wall of the left ventricle a zone of myocardial atrophy, probably due to an old healed infarction, was encountered. In this area there was evidence of recent myocardial necrosis with small hemorrhages superimposed upon the old lesion. Close to this area there was a perforation of the septum that measured 3 cm vertically and approximately 1 cm across (Fig. 9). The borders of the perforation were covered with thrombotic material. The posterior papillary muscle disclosed also evidence of a healed infarction. The anterior papillary muscle was well preserved. The left atrium was moderately dilated and the right chambers of the heart appeared normal. The valves of the heart were normal in structure and size. All the coronary arteries exhibited severe atherosclerosis. The lumen of the anterior descending branch of the left coronary artery was practically obliterated by an organized and canalized thrombus arising 0.5 cm from its point of origin and extending distally for nearly 1.5 cm. A similar process was observed in the commencement of the right coronary artery beginning a few millimeters from its point of origin and extending distally for 1 cm. The circumflex artery disclosed only severe calcifying atherosclerosis in its proximal segment.



Fig. 9: *Case 2. Area of perforation 1 cm x 3 cm on the upper posteroseptal wall.*

Histologic examination of sections from the upper posterior wall of the left ventricle and contiguous septal wall showed a number of irregular scars. In this zone of the ventricular and septal walls large areas of hyaline necrosis of the myocardium were observed. The latter were infiltrated with numerous segmented neutrophiles at times forming collections simulating microabcesses. Sections of the septum at the seat of the perforation showed ragged margins closely infiltrated with polymorphonuclear neutrophiles. Sections from the right and left coronary arteries showed severe arteriosclerosis and an organized and recanalized thrombus in the right coronary artery including few narrowed blood channels toward the center and a large eccentric one. The lumen of the artery was reduced about 90 percent by this thrombotic process. The left coronary artery showed a similar condition with eccentricity of the lumen which was reduced to about one fifth of its original size. The circumflex artery showed only an obliterating arteriosclerotic process.

Discussion

From November 1946 to February, 1968, over 1070 cases have been treated for myocardial infarction at the San Juan VA Hospital. Of these, 209 have come to autopsy. During the same period, a total of 1121 autopsies have been performed. Rupture of papillary muscle has occurred in 2 cases which have been previously reported (3). The cases here presented are the only two in which perforation of the septum has occurred. Both cases were diagnosed antemortem.

The autopsy incidence of septal perforation in myocardial infarction in this hospital is 0.9 percent. This is comparable to the incidence found by Díaz Rivera and Miller (4), in a study of 1250 autopsies in Louisville, Kentucky. In 147 myocardial infarctions they found 4 ruptures of the anterior ventricular wall and one perforation of the septum. In Puerto Rico, Rodríguez *et al* (5), recorded three cases of myocardial rupture in 69 myocardial infarctions among 2000 autopsies, but did not mention septal ruptures. Perforation of the septum is not mentioned either in Koppisch's study of causes of sudden death in 700 autopsies (6).

Over 220 cases of rupture of the interventricular septum have been reported in the English literature (2). The rupture usually occurs within the first two weeks of an acute myocardial infarction, the majority occurring in the first week. The perforation is usually in the muscular septum at the area of the apex, varying in size from several millimeters to 6 or 7 centimeters in diameter.

A loud systolic murmur appearing for the first

time following an acute myocardial infarction brings into the differential diagnosis rupture of the ventricular septum. A precise functional and anatomical diagnosis should be made if proper therapy is to be instituted. The possible causes for such a murmur (7) include: rupture of a papillary muscle, rupture of the interventricular septum, papillary muscle dysfunction, and acute left ventricular dilatation.

In papillary muscle rupture the characteristic finding is a loud, holosystolic murmur at the mitral region radiating to the axilla. The murmur is usually of less intensity and of lower pitch than that of ventricular septal rupture. Only a few cases have been found to have a thrill. Usually there is sudden onset of shortness of breath followed by pulmonary edema due to the strain imposed on the left ventricle. Death usually occurs within 24 hours; however, there have been reports of prolonged survival for months to years with medical management as well as after surgical repair (8).

Unlike rupture of a papillary muscle, rupture of the interventricular septum commonly produces a loud roaring holosystolic murmur fairly well localized at the fourth and fifth interspace to the left of the sternum and rarely transmitted to the axilla. A systolic thrill is palpable over this area in 50-60 percent of the cases in contrast to papillary muscle rupture in which a thrill is only rarely palpable. Right sided heart failure is prominent and arrhythmias are common. Conduction defects occur in 40 percent of the patients and include all degrees of atrioventricular block, right and left bundle branch block, and nodal rhythm. A QS or QRS configuration with elevated ST segments is present over the right precordium in 35 percent of the patients (9). The prognosis is poor; only 13 percent survive for two months and 3 percent survive more than one year (1).

Phillips *et al* (10) described the syndrome of papillary muscle dysfunction after myocardial infarction. It is characterized by the appearance of a middle or late systolic apical murmur. Unlike the above mentioned conditions, congestive heart failure is not a prominent part of this syndrome.

Acute left ventricular dilatation is another cause for the initial appearance of a systolic murmur following an acute myocardial infarct. Signs of left ventricular enlargement and failure are usually present in such patients. The murmur may be heard only transiently and disappears when the signs of failure regress.

Our cases exemplify very well the clinical electrocardiographic, and phonocardiographic features of rupture of the interventricular septum. The rough grade IV/VI holosystolic murmur which was loudest at the fourth interspace to the left of the sternum, the thrill over the same area and the signs of progressing intractable right sided failure were classical. As is usual in these cases, the roentgenogram of the chest taken on admission, when already the murmur and thrill were present, failed to show cardiac enlargement. In case 1, besides the classical anteroseptal infarction, the electrocardiograms showed both extensive anterior involvement and a diaphragmatic infarct of undetermined age (Fig. 1). Case 2 showed a recent diaphragmatic wall infarction only (Fig. 7). The lesions triggered some of the arrhythmias most frequently seen with this complication such as ventricular tachycardia, atrioventricular block and nodal rhythm (Figs. 2, 3, 6, 7).

The phonocardiograms in our cases are of particular interest. In case 1 (Fig. 4) there was a systolic murmur loudest at the fourth interspace midway between the apex and the left sternal border. The murmur terminated in a systolic click separated from a split second sound by a silent gap. Cahill and Flood (11) reported a case with similar phonocardiographic findings, except that it did not exhibit a systolic click.

Possible mechanisms explaining the termination of the murmur of ruptured interventricular septum before the second heart sound include: increase in pulmonary pressure, closure of the septal orifice by a thrombus, closure of the orifice by the myocardial contraction, production of balanced left and right ventricular pressures by a defect so large as to result in a single ventricle effect, and location of the perforation in the posterior septum so that the murmur is not audible in the anterior chest. We believe that in our case 1 the termination of the murmur before the second sound may have been due to occlusion of the defect by the thrombotic membrane which rimmed the perforation and/or closure of the defect during systole.

The cause of the click is not clear. It might have been due to snappy closure of the defect by the thrombus and/or sudden distention of the thin walled aneurysmal dilatation at the site of the infarction. Phonocardiographic studies (12, 13, 14) have clearly demonstrated the association of midsystolic clicks and late systolic murmurs with mitral valve incompetence. However, in mitral incompetence the click precedes the murmur, whiel in our case 1 the click terminated the murmur. A papillary muscle dysfunction with mitral insufficiency could be demonstrated neither

clinically or at post mortem examination in our case.

The phonocardiogram in case 2 showed (Fig. 9) the classical holosystolic murmur, loudest at the left sternal border and extending to the second heart sound.

Once the diagnosis of ruptured interventricular septum is made, one is confronted with the dilemma of whether or not surgical correction should be recommended in a very critically ill patient (15, 16, 17). Successful surgical repairs of acquired ventricular septal defect after myocardial infarction with varying lengths of survival, have been reported (15, 16, 17, 19). Although survival of ruptured interventricular septum on conservative management for as long as thirteen years has been reported (18), such cases are truly exceptional since only 13 percent of the cases are alive at the end of two months. Therefore, if surgery is recommended, it should be performed within the first four weeks if it is to improve substantially the chances of survival. Since the mortality with conservative management is so high, this would seem to be a fruitful area for additional investigation. It is necessary to re-evaluate this problem in the light of modern intracardiac surgical resources in order to develop a basis for criteria for operability (20). Meanwhile, it behoves those who care for these patients to continue in the look out for this complication and to develop means to establish an accurate diagnosis.

Summary

Two cases of ruptured interventricular septum following an acute myocardial infarction are presented. These occurred in elderly males who were admitted with electrocardiographic evidence of recent myocardial infarction and were known to have no previous significant heart murmurs. Both patients presented a loud systolic murmur at the fourth intercostal space along the left sternal border, accompanied by a palpable thrill. Right heart failure was a prominent feature in both cases, as were arrhythmias. In one case, the phonocardiogram showed a silent gap after termination of the murmur by a systolic click. Possible explanations for this unusual finding are suggested.

The differential diagnosis of a systolic murmur appearing for the first time after a myocardial infarction is discussed. As surgical repair may become a feasible form of early treatment of this complication, precise and prompt diagnosis is of paramount importance.

Resumen

Se presentan dos casos de rotura del septo interventricular debido a infarto del miocardio. Ambos ocurrieron en varones de edad avanzada ingresados con evidencia electrocardiográfica de infarto reciente sin haber tenido antes soplos cardíacos de importancia. Los dos casos presentaron un soplo sistólico intenso en el cuarto espacio intercostal cerca del borde izquierdo del esternón, acompañado de estremecimiento catáreo. En un caso, la fonocardiografía demostró la terminación abrupta del soplo por un "click" sistólico. Se describen posibles mecanismos para explicar este hallazgo atípico.

Se discute el diagnóstico diferencial de un soplo sistólico que aparece por primera vez después de un infarto agudo del miocardio. Ya que la reparación quirúrgica puede convertirse en una forma factible de tratamiento durante la fase aguda de esta complicación, la rapidez de un diagnóstico preciso es de suma importancia.

References

1. *Friedberg, C. K.:* Diseases of the heart, W. B. Saunders, 3rd. ed., Philadelphia and London, 1966, p. 855.
2. *Lee, W. Y., Cardon, L., Slodki, S. J.:* Perforation of infarcted interventricular septum. Arch. Intern. Med. 109: 731, 1962.
3. *Reyes, F. M., Torres, J. M.:* Rupture of a papillary muscle in myocardial infarction. Bol. Asoc. Méd. P. Rico 59: 196, 1967.
4. *Díaz Rivera, R. S., Miller, A. J.:* Rupture of the heart following acute myocardial infarct. Amer. Heart J. 35: 126, 1948.
5. *Rodríguez, H., Anaya, C., Carreras, R., Blasini, R., Rivera, E.:* Incidence of heart disease in Puerto Rico: Analysis of 2000 autopsies. Bol. Asoc. Méd. P. Rico 55: 161, 1963.
6. *Koppisch, E.:* On the causes of sudden death in Puerto Rico, P. R. J. Publ. Health Trop. Med. 9: 328, 1933-34.
7. *Holloway, D. H. Jr., Wholen, R. C., McIntoch, H. D.:* Systolic murmur developing after myocardial ischemia or infarction. J. A. M. A. 191: 888, 1965.
8. *De la Torre, A., Linhart, J. W., Bartley, T. D.:* Mitral valve replacement in a patient with mitral regurgitation secondary to rupture of a papillary muscle. Ann. Intern. Med. 67: 387, 1967.
9. *Skoulas, A., Beier, R. L.:* Dissecting perforation of infarcted interventricular septum with associated posterior papillary muscle involvement. Amer. J. Med. 43: 461, 1967.
10. *Phillips, J. H., Burch, G. E., and De Pasquale, N. P.:* Syndrome of papillary muscle dysfunction: Its clinical recognition. Ann. Intern. Med. 59: 508, 1963.

11. *Cahill, K. M., Flood, F. B.:* Rupture of the infarcted ventricular septum. Amer. Heart J. 64: 686, 1962.
12. *Hancock, E. W., Cohn, K.:* Syndrome associated with midsystolic click and late systolic murmur. Amer. J. Med. 41: 183, 1966.
13. *Leon, D. F., Leonard, J. J., Kroetz, F. W., Page, W. L., Shaver, J. A., Lancaster, J. F.:* Late systolic murmurs, clicks and whoops arising from the mitral valve. Amer. Heart J. 72: 325, 1966.
14. *Rovan, J. A., Perloff, J. K., Harvey, W. P.:* Systolic clicks and the late systolic murmur. Amer. Heart J. 70: 319, 1965.
15. *Padhi, R. K., Fletcher, A. G., Dias, F., Servid, L. P., Mutaki, G. S., Mody, S. M. S.:* Closure of ventricular septal defect following myocardial infarction. Arch. Surg. 94: 168, 1967.
16. *Honey, M., Belcher, J. R., Hasan, M., Gibbons, J. R. P.:* Successful early repair of acquired ventricular septal defect after myocardial infarction. Brit. Heart J. 29: 453, 1967.
17. *Grismer, J. T., Raat, D. E., Berman, D. A., Berman, R., Hill, E.:* Successful repair of a ruptured ventricular septum complicating a recent myocardial infarction. Amer. J. Card. 18: 120, 1966.
18. *Landale, D. C., Schlappi, J. C.:* Thirteen year survival with acquired interventricular septal defect after myocardial infarction. Amer. Heart J. 64: 33, 1962.
19. *Barnard, P. M., Kennedy, J. H.:* Post infarction ventricular septal defect. Circulation 32: 76, 1965.

SWEAT ELECTROLYTE CONCENTRATIONS IN PUERTO RICAN CHILDREN

T. Lawrence Fleisher, MD
A. del C. González Lebrón, BS

Elevated sweat electrolyte concentrations are a constant feature of cystic fibrosis. Their measurement, therefore, serves as the laboratory confirmation of the clinical diagnosis of the disease (1, 2). However, the normal standard value of the sweat electrolyte concentration utilized for comparison has been obtained from subjects living in the temperate zone eating diets typical for those areas. Since these two factors, temperature and diet, influence the concentration of sweat electrolytes (3), it is necessary to determine normal standards for sweat electrolyte concentrations for use in Puerto Rican patients. The purpose of the work described in this paper is to determine the normal sweat electrolyte concentration in a healthy Puerto Rican pediatric population.

Methods

Factors that must be controlled in order not to obtain an abnormally high electrolyte concentration, or false positive result are adrenal hormone administration, age, sweat rate, emotional sweating and laboratory errors (3). In the present study the following methods were used in order to obtain accurate results:

1. The sweat flow rate was controlled by stimulating the sweat glands maximally (4, 5).

2. Emotional sweating was eliminated by taking samples from areas which do not produce sweat in response to emotional stimuli.

Those areas which are capable of producing sweat on an emotional basis, the palms, soles and forehead were not utilized as test areas (6, 7).

3. Temperature was by-passed as a possible source of error by stimulating the sweat glands maximally. Therefore, had the temperature changed the sweat glands could not have responded correspondingly.

4. Salt intake was purposely not controlled, since the object of the study was to obtain subjects from this environment on typical Puerto Rican diets for their respective ages.

5. No hormones had ever been administered to any of the subjects.

6. The subjects were specifically taken at different ages in order to attempt to establish a normal range for healthy Puerto Rican children.

The study group was composed of healthy boys and girls from infancy through twelve years of age. Prior to age two years, subjects were obtained from one month through twenty-three months. From ages two through twelve years subjects of each sex were obtained for each year.

A history was obtained on all members of the study group. The mother was the historian. All the subjects were free of all atopic diseases and denied a past history of pneumonia or diarrhea and a familial history of atopy.

Pilocarpine iontophoresis was utilized in order to stimulate the sweat glands directly and maximally (4, 5, 7). The area used was the medial aspect of the left forearm. Sweat samples were collected in impermeable plastic containers (8, 9). All possible care was taken to avoid evaporation, a common source of error. Chloride was measured using potentionmetric titration (10, 11), an extremely accurate method. Sodium and potassium concentrations were quantitated by flame photometry with lithium as an internal standard (12, 13, 14). All of the laboratory techniques were based on sound theoretical and practical basis and were checked between samples for accuracy with known standard solutions.

Children studied were selected from the Well Baby Clinic at the University District Hospital and from the author's private practice.

Results

Sweat samples were obtained from 37 subjects. No healthy twenty-two month old male was available for testing. From one subject an insufficient quantity of sweat was obtained so that the chloride concentration could not measured.

Individual results are given in Tables I and II.

The results of the chloride concentrations will be discussed in detail because it is the chloride concentration which is routinely measured in order to diagnose the disease. In addition, the sodium concen-

From the Dermatology Section, Department of Medicine, University of Puerto Rico School of Medicine.

This work was partially supported by Contract Number DA-49-193-MD 2500, Office of Research and Development of the Surgeon General of the U. S. Army and the Office of the Dean, School of Medicine, University of Puerto Rico.

tration in the sweat, usually closely parallels the chloride concentration. Potassium may be lost transepidermally since it is a normal intracellular constituent. Therefore, when collected on the skin surface under a plastic barrier it should not be considered as a product of sweat exclusively (8).

In only eight subjects was the chloride concentratation above 30 mEq/L. In no case did the chloride concentration exceed 42 mEq/L. The chloride concentration in all of the other subjects was less than 30 mEq/L.

Table III summarizes the results of the chloride concentrations. It may be seen that there is a higher average chloride concentration in males than in females which is more marked after two years of age. These results parallel those other investigators from temperate climates (15, 16).

TABLE I: SWEAT ELECTROLYTE CONCENTRATIONS IN BOYS

Age	Chloride *mEq/L*	Sodium *mEq/L*	Potassium *mEq/L*
1 month	22.30	25.80	23.19
2 months	15.60	13.0	11.40
3 months	24.50	28.20	15.10
4 months	11.30	10.0	12.60
5 months	16.40	16.40	8.08
6 months	22.80	21.6	26.90
7 months	16.40	14.4	13.10
8 months	21.62	22.0	13.0
9 months	12.55	13.60	15.60
10 months	14.99	18.00	13.00
11 months	31.19	30.00	23.90
12 months	9.44	16.00	11.30
13 months	8.85	9.60	16.80
14 months	17.98	21.0	18.00
15 months	16.26	22.40	12.80
16 months	35.50	37.0	15.30
17 months	14.83	18.00	16.40
18 months	23.21	26.00	21.13
19 months	22.71	25.60	14.40
20 months	18.71	28.40	22.20
21 months	28.56	28.40	21.80
22 months	No subjects obtained		
23 months	38.03	32.40	16.40
2 years	27.25	26.40	14.10
3 years	17.77	18.00	15.0
4 years	22.23	32.00	13.40
5 years	20.46	26.4	14.06
6 years	23.87	25.00	24.90
7 years	26.73	35.0	20.00
8 years	28.94	31.0	17.00
9 years	33.29	40.40	13.00
10 years	39.49	46.40	13.00
11 years	13.52	28.0	9.70
12 years	40.34	47.6	20.90
Average	20.68	23.55	14.92
Median	17.98	26.0	15.10

TABLE II: SWEAT ELECTROLYTE CONCENTRATIONS IN GIRLS

Age	Chloride *mEq/L*	Sodium *mEq/L*	Potassium *mEq/L*
1 month	21.78	24.40	21.40
2 months	16.17	18.53	15.10
3 months	18.69	16.82	16.20
4 months	20.02	20.00	13.30
5 months	13.26	11.04	8.70
6 months	8.52	9.92	8.75
7 months	27.60	25.60	18.30
8 months	16.40	15.00	11.90
9 months	15.21	26.00	12.50
10 months	7.15	12.00	12.00
11 months	20.43	20.60	17.40
12 months	22.60	24.24	13.60
13 months	12.71	22.40	20.00
14 months	20.13	23.60	24.38
15 months	36.84	32.00	27.50
16 months	19.42	32.00	17.80
17 months	13.28	22.00	13.90
18 months	27.13	32.00	14.30
19 months	15.44	27.00	13.60
20 months	13.29	18.00	11.60
21 months	41.45	48.00	18.80
22 months	9.40	14.20	14.34
23 months	26.20	33.60	13.70
2 years	17.00	20.00	15.00
3 years	18.33	22.40	8.75
4 years	14.13	20.40	20.90
5 years	24.70	31.00	14.70
6 years	19.66	37.00	8.60
7 years	35.50	41.00	16.75
8 years	13.02	16.40	12.40
9 years	22.95	21.00	32.00
10 years	29.60	29.00	16.90
11 years	QNS	18.00	12.19
12 years	16.60	24.40	15.00
Average	19.18	22.74	15.92
Median	18.33	22.40	14.34

TABLE III: AVERAGE SWEAT CHLORIDE CONCENTRATIONS

Sex	Age	Chloride (mEq/L)		
		Average	*Median*	*Standard Deviation*
Male	0-24 months	19.95	17.98	7.2
Female	0-24 months	18.20	17.75	7.9
Male	3-12 years	26.75	27.25	8.9
Female	3-12 years	21.63	18.95	6.7

Summary

In a sample of an apparently healthy Puerto Rican pediatric population the sweat electrolyte concentrations were found to be considerably lower than the accepted normal values in the Continental United States. The sweat chloride concentration rarely exceeded 30 mEq/L while 80 mEq/L are accepted as the upper limits of normal in similar continental groups.

In continental subjects or patients a sweat chloride concentration of 60-80 mEq/L is considered to be a high borderline normal result and the test is repeated. If on repetition the results are above 80 mEq/L of chlorides the test is confirmatory of cystic fibrosis.

On the basis of the results of the present work it is advisable to consider 30-40 mEq/L chlorides in pilocarpine induced sweating in Puerto Rican children to be the high borderline normal and repetition of the test is indicated.

Resumen

El propósito de este estudio fue determinar los niveles normales de los electrólitos en el sudor de una población pediátrica de puertorriqueños saludables. Después de eliminar posibles factores que pueden influir en la concentración de los electrólitos en el sudor, se estimularon las glándulas de sudor al máximo utilizando iontoforésis con pilocarpina. Se recogieron múltiples muestras en bolsas impermeables en 67 niños de edades representativas. Se midieron concentraciones de cloruro, potasio y de sodio por métodos de titración ponteciométrica y flamafotometría respectivamente.

Los resultados mostraron niveles de cloruro consistentemente más bajos de 30 meq/L. Basado en los resultados de este trabajo, se debe considerar un nivel de 30-40 meq/L de cloruro como los límites altos normales de la concentración de este electrólito.

La aplicación clínica de este trabajo es en el diagnóstico de la enfermedad fibroquística en la cual se considera un nivel elevado de cloruro en el sudor necesario para confirmar su diagnóstico.

References

1. *Holt, L. E., McIntosh, R., and Barnett, H. L.:* Pediatrics, Appleton Century Crofts Inc., New York, 1962, pp. 461-470.
2. *Swachman, H., and Gahm, N.:* Studies in cystic fibrosis of the pancreas; a simple test for the detection of excessive chloride on the skin. New. Eng. J. Med. 255: 999, 1956.
3. *Dobson, R. L., and Cage, G. W.:* The eccrine sweat gland in systemic disease, in di Sant' Agnese, P. A. (ed.). Proceedings III International Research Conference on Pathogenesis of Cystic Fibrosis, 1964, pp. 57-66.
4. *Huebner, D. E., Lobeck, C. C. and McSherry, N. R.:* Density and secretory activity of eccrine sweat glands in patients with cystic fibrosis and healthy controls. Pediatrics 38: 613, 1966.
5. *Randall, W. C.:* Quantitation of regional distribution of sweat glands in man. J. Clin. Invest. 25: 761, 1946.
6. *Rothman, S.:* Physiology and Biochemistry of the Skin, The University of Chicago Press, Chicago, 1954, pp. 160, 176-177.
7. *Suizberger, M. B., and Herrmann, F.:* The clinical significance of disturbances in the delivery of sweat, Charles C. Thomas, Springfield, 1954, pp. 17, 34.
8. *Bass, D. E., Mayer, M., and Barretto, R. B.:* Effect of a vapor barrier on rate of excretion of sweat solutes. J. Applied Physiol. 14: 431, 1959.
9. *Gibson, L. E., and Cooke, R. E.:* A test for concentration of electrolytes in sweat in cystic fibrosis of the pancreas utilizing pilocarpine iontophoresis. Pediatrics 23:

545, 1959.
10. *Cotlove, E., Trantham, R. V., and Bowman, R. L.:* An instrument and method for automatic, rapid, accurate and sensitive titration of chloride in biological samples. J. Lab. Clin. Med. 50: 358, 1958.
11. *Cheyne, G. A.:* Techniques in Chemical Pathology, F. A. Davis Co., Philadelphia, 1964, pp. 149-150.
12. *Cholak, V. and Hubbard, D. M.:* Spectrochemical analysis in the air acetylene flame. Ind. Eng. Chem. Anal. 16: 728, 1944.
13. *Dean, J. A.:* Flame Photometry, McGraw Hill, New York, 1960, pp. 3, 121, 160-173, 271-283.
14. *Sabolka, H., and Steward, C. P.:* Advances in Clinical Chemistry, Academic Press, New York, 1961, pp. 1-28.
15. *Kahn, D., and Rothman, S.:* Sweat response to acetylcholine. J. Invest. Derm. 5: 431, 1942.
16. *Gibson, T. E., and Shelley, W. B.:* Sexual and racial differences in the response of sweat glands to acetyicholine and pilocarpine. J. Invest. Derm. 11: 137, 1948.

INTRAUTERINE CONTRACEPTION WITH THE SAF-T-COIL 33.S ®

Study on 100 Cases

J. Blanco Herrera, MD
A. Hernández Torres, MD

The use of an intrauterine device as a contraceptive method has been known for many centuries since the Arabs and the Turkish camel owners inserted a small desert stone into the camels womb so as to prevent them from getting pregnant. This proved to be an excellent idea since the pregnant camels are very difficult to manage during the long desert journeys (1).

Modern interest on intrauterine contraception dates to the early twentieth century when Grafenberg (2) modified the stem pessary into an intrauterine ring contraceptive device. However, widespread interest on new intrauterine devices (IUD) was renewed from 1959 on after encouraging reports from Japan, Israel, USA and others. Enough worldwide evidence has been presented to show that the IUD can be used as a contraceptive method to great advantage in many of the underdeveloped countries and that this method deserves a place in the armamentarium of contraceptive practice. The most widely and frequently used IUD at the present time is the Lippes Loop 2, also known as the Lippes D (Fig. 1).

The advantages of an IUD are measured according to its effectiveness in preventing a pregnancy and its acceptability to the user. Table I shows the advantages or disadvantages of some of the most frequently used IUD's.

The mechanism by which IUD's prevent pregnancy in the human is not well understood. Endometrial changes following their use appear to be limited to increased edema and vascularity. Changes in uterine and tubal irritability have been suggested as possible mechanisms.

Material and Method

In August 1966 a study was initiated to test the effectiveness and acceptability of a new IUD at our Bayamón Postpartum Clinic of the Northeast Region of Health of Puerto Rico. The SAF-T-COIL®(Fig. 2) as this new device is known, has the shape of a double spiral and at its cervical end has a nylon tail to detect its presence and facilitate its removal if necessary. It is wrapped in a sterile plastic bag and its tubular plastic inserter and the plunger are disposable. A ten percent barium salt has been added to the IUD so as to make it visible by X-rays.

The women who chose this method were healthy, of proven fertility and with an age ranging from 15 to 44 years. An initial evaluation consisting of a medical history, physical examination and Papanicolaou smear was done prior to insertion. Any contraindication such as amenorrhea, menstrual irregularities, suspicious uterine enlargement, signs of infection, or pelvic pathology was sufficient to postpone or advise further gynecological investigation. If no contraindications were present the patient was told of the possible disadvantages of the method. She agreed by signing an authorization permit for the insertion. The IUD insertion

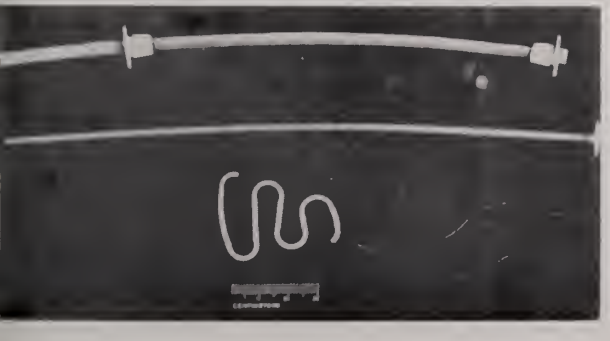


Fig. 1: *Lippes Loop 2 and inserter.*



Fig. 2: *Saf-T-Coil and inserter.*

TABLE I: CUMULATIVE RATE OF UNINTENDED PREGNANCIES, EXPULSIONS AND RELEVANT REMOVALS AT 12 MONTHS AFTER FIRST INSERTION (4)

Device	No.	Pregnancies Percent	Expulsions Percent	Relevant Removals Percent
Spiral 5.J	737	2.6	27.0	13.9
Spiral 5	3090	1.1	16.2	14.7
Loop 1	901	6.0	19.3	15.2
Loop 2	2374	1.4	7.0	11.9
Bow 3	1037	3.9	1.8	4.6
Steel ring	1184	3.5	7.8	4.7
Other	1001	2.9	13.5	12.9
Total	10324	2.6	13.5	12.1

was always done at the time the patient was having her menses. This is done for two reasons, (1) the endocervical canal becomes more permeable at the time of menses and facilitates the insertion; (2) the possibility of an intrauterine pregnancy is least likely at this time.

To facilitate the insertion of the SAF-T-COIL 33.S®, the following sterile instruments should be available: uterine sound, tenaculum (for positioning the cervix, if necessary) and a vaginal speculum.

With the patient in the lithotomy position and with the speculum in the vaginal canal the cervical canal is gently probed to further determine if the uterus is anteverted or retroverted. The dilator or uterine sound will slightly dilate the cervix and align the cervical canal. This procedure will expedite passage of the insertion tube.

After removing the SAF-T-COIL 33.S from the sterile package, the protruding end of the plunger is grasped and the SAF-T-COIL 33.S® is slowly pulled into the insertion tube until the nodule on the end of the coil contacts the distal end of the insertion tube and remains reliably in place. The SAF-T-COIL 33.S should not be kept in the insertion tube more than 8 or 10 minutes as it may lose its memory.

The distal end of the loaded insertion tube is inserted gently into the cervical os. The insertion tube is advanced into the uterus until it contacts the fundus, or until the operator or the patient feels pressure. The colored band on the insertion tube is six centimeters (2 1/2 inches) from the distal tip. This length is assumed to be the average anatomical distance between the cervical os and the fundus. The insertion tube is pulled back about one centimeter (1/2 inch). The complete SAF-T-COIL 33.S® unit, including the insertion tube is turned, until the black dot on the plunger is up. This will orient the SAF-T-COIL 33.S® in the frontal plane of the uterus when ejected. (Do not turn the plunger separately within the insertion tube as the coil itself does not turn.)

Very slowly and gently the plunger is advanced, black dot up, until you or the patient feel pressure or until the black dot on the plunger reaches the proximal end of the insertion tube. The SAF-T-COIL 33.S® is now in place. The insertion tube and plunger can now be withdrawn and discarded.

The patient should be instructed to return after her first period and every six months thereafter for an examination. She should be informed that cramping may occur after insertion and during the first and possibly the second menstrual periods. This cramping can be controlled with simple analgesics. The patient may experience irregular bleeding for one or two menstrual periods and occasional spotting between these periods. The first period after insertion may come early and the flow may be heavier than usual. This can be controlled with ergotrate tablets.

A total of 123 patients were admitted to the study during an eighteen month period. Our corrected series of patients was reduced to 100, since out of the initial total patients who started the method, ten did not return after the insertion and thirteen did not come back after their six month check up. These twenty-three "delinquent" patients (18.7 percent) were lost to follow up.

Results

Table II shows the age distribution at the time of admission. Twenty percent of the patients were below age twenty and 83 percent were below twenty-nine years. This probably confirms our impression that more and more the younger couples are realizing the importance of family planning and spacing.

Table III shows the parity distribution of the total clientele at the time of admission. Twenty percent were para 1 and sixty-four percent were para 2 to 5. The usual trend is that the former, that is, the young and low parity woman use the IUD for family spacing while the latter, that is, the grand multipara, most probably use it for definite fertility control. It is

TABLE II: AGE OF PATIENTS

Age (years)	No.
Less than 20 years	20
20 - 24	44
25 - 29	24
30 - 34	10
35 - 40	1
More than 40 years	1
Total	100

TABLE III: PARITY OF PATIENTS

Para	No.	Percent
1	22	22
2 - 3	55	55
4 - 5	17	17
6 - 7	5	5
8	1	1
Total	100	100

TABLE IV: SIDE EFFECTS

Complications	No.	Percent
Bleeding	21	21
Spotting	13	13
Pain	20	20
Amenorrhea	5	5
Leucorrhea	5	5
Nausea	2	2
Total	66	66

TABLE V: SPONTANEOUS EXPULSIONS BY AGE GROUP

Age (Years)	No.	Percent
<19	6	6
20 - 25	10	10
26 - 30	4	4
>19	1	1
Total	21	21

interesting to point out that 45 percent of the women on the study had recently delivered while the other 55 percent were not recently delivered patients who heard about the program in the community.

Table IV shows a 66 percent incidence of patients with complaints, while the other 34 percent had uneventful progress. The most frequent complaints were: some degree of blood loss in 34 percent (bleeding and spotting), and low abdominal pain in 20 percent. Both symptoms most frequently appeared during the first three months after insertion. Apprehension on the part of the patient was reduced considerably after it was explained that the above mentioned symptoms were to be expected and that they would subside with ergotrate and analgesics. The problems are common to all IUD's. Amenorrhea seems to be an interesting finding that needs further study. Leucorrhea and nausea, the last two in the list of complications, are not very common and usually are secondary to other condition rather than to the IUD itself.

Table V demonstrates the number of expulsions by age groups. Twenty-one percent had spontaneous expulsion. This is two times the expulsion rate for the Lippes Loop D during the first year of use in Puerto Rican women (3). Sixteen percent of the expulsions were patients younger than 25 years. This table gives the impression that the frequency of spontaneous expulsions of IUD's is directly related to age. The real picture is that as a rule the younger the women the lower the parity and it is the latter that does keep a direct ratio to the number of expulsions as shown in table III.

Table VI illustrates the most frequent time interval for the expulsion of the SAF-T-COIL®. As in many of the IUD's the most frequent time interval for the expulsion of the device under study was during the first four months of use for an incidence of 82 percent.

The removal of the SAF-T-COIL® because of bleeding and/or pain was necessary in 17 patients, an incidence of 17 percent. This is two times higher

TABLE VI: EXPULSION TIME INTERVAL

Time (mo.)	No.	Percent
1	8	47
2	2	12
4	4	23
6	2	12
12	1	6
Total	17	100

than for the Lippes Loop (8 percent) (3). Two percent of our patients got pregnant with the IUD in situ. These two patients have not yet delivered. Our experience with the Lippes Loop shows that the majority of these patients expel the device with the placenta at term, without harm to the fetus or the mother. It is our experience that it is better not to remove the IUD while inside the pregnant uterus (3). Tietze's international report shows an incidence of 2-3 percent pregnancy with the Lippes device.

Summary

An experience with the use of a contraceptive device (Saf-T-Coil 33.S®) in 100 women is described. Age of subjects, parity, causes and frequency of expulsion and removal and complication are analyzed. Acceptability and effectiveness of this method is not superior to that employing the Lippes Loop D.

Resumen

Se presenta un estudio en cien pacientes indigentes de la Región Noreste de Salud a quienes se les insertó un dispositivo intrauterino plástico conocido como el SAF-T-COIL 33.S®. Se analizan las variables de edad, paridad, expulsiones, remociones, complicaciones, y otras. Los resultados sobre la efectividad y la aceptabilidad de dicho método no son mejores que los que actualmente estamos obteniendo con el Lippes Loop D.

References

1. *Cauvet, G.:* Le Chameau. Baillere et Fils, Paris, 1925 - p. 365.
2. *Grafenberg, E.:* Silk als Antikonzipiens. Geburtenregelung. Kurt Bendix, Berlin, 1928 - p. 50.
3. *Hernández Torres, A.:* Long term use-effectiveness of IUD's vs. Progestational agents. Presented at IPPF 8th International Meeting - 1967, Santiago, Chile.
4. *Tietze, C.:* Cooperative statistical international program for evaluation of IUD's. Eight Progress Report, June 30, 1967. Population Council.

INFORME DEL PRESIDENTE

J. A. Alvarez de Choudens, MD

Al terminar el año oficial 1967-68 de nuestra Asociación Médica de Puerto Rico y con él mis obligaciones en la presidencia, conviene que repasemos los acontecimientos del año que termina y que reevaluemos el estado de salud de nuestro pueblo para que esta Cámara de Delegados pueda dar a su nueva Junta de Directores pautas claras y precisas sobre el curso que ha de seguir nuestra Asociación durante el próximo año.

Hace 70 años que un famoso escritor polaco publicó una novela titulada ¿Quo Vadis? Es una poderosa narración del conflicto en la Roma antigua entre el paganismo y el recién nacido Cristianismo, conflicto vivido en los corazones de los hombres y en los acontecimientos políticos del imperio romano. El título de la novela surge de que cuando el Apóstol Pedro huía de Roma, descorazonado y desalentado, se le apareció Cristo con una penetrante pregunta, ¿Quo Vadis? o ¿A dónde vas? La consideración de la pregunta de Cristo hizo que San Pedro diera vuelta atrás, retornara a Roma, y continuara su magnífica pero desigual lucha.

En éste, mi último informe a ustedes, me gustaría hacer la pregunta, ¿Quo Vadis? aunque expandiéndola para que sea no solo, ¿A dónde vas?, sino también, ¿A dónde vamos?, ¿Hacia dónde nos dirigimos?

Me parece especialmente apropiado que se le hagan estas preguntas a nuestra profesión, no solamente en esta ocasión en que comenzamos nuestra asamblea anual, sino en este momento en la historia de la medicina en Puerto Rico, en este momento en la historia política de nuestro pueblo.

Opinamos que estas elecciones representarán la entrada de nuestro pueblo en una tercera etapa de su desarrollo como democracia representativa. Antes del 1940, el proceso electoral era muy imperfecto y limitaba la participación del pueblo en las decisiones a partir del 1940, pusieron en manos del pueblo el poder efectivo de determinar el partido que nos gobernaría. Pero este sistema limitaba la intervención del pueblo a una consulta cada cuatro años, y a votar por los candidatos escogidos por los organismos de cada partido. Los mecanismos para que los ciudadanos puedan participar en la selección de los candidatos han venido desarrollándose muy lentamente. Las estructuras que permitan que el ciudadano pueda participar activamente y contínuamente en el quehacer gubernamental son prácticamente inexistentes.

Somos de opinión que la tercera etapa ha comenzado ya y que en futuros sufragios se consultará más y más a los votantes en la selección de candidatos mediante primarias y que cada día se proveerá mayor intervención de los ciudadanos en los múltiples aspectos de la vida pública mediante el uso de juntas consultivas, comités de querellas, vistas públicas y otros mecanismos de consulta democrática.

Esta nueva etapa de nuestro vivir democrático ha de ofrecer oportunidades cada día más amplias para que nuestra profesión representada por nuestra Asociación y por cada uno de nosotros individualmente pueda influenciar las decisiones que se precisan hacer en el campo de la salud. Es pues necesario que redefinamos nuestros propósitos y que establezcamos las estructuras necesarias para poder cumplir responsablemente con nuestra misión de guiar los esfuerzos de nuestro pueblo de crear una comunidad saludable en cuerpo y alma.

Nuestro secretario, el Dr. *César Rosa Febles*, ha presentado un abarcador y excelente informe el cual incluye la acción tomada sobre las resoluciones aprobadas por la Cámara de Delegados en Mayagüez en julio y otras resoluciones que habían quedado pendientes. Cubriremos ahora otras áreas de importancia:

Administración

Se ha continuado la labor de mejorar la administración interna de nuestra Asociación. Como habíamos anticipado en la reunión anual del año pasado se

---

Leído ante la Honorable Cámara de Delegados en su reunión de noviembre de 1968 en San Juan, Puerto Rico.

comprobó temprano en el 1968 que nuestro presupuesto era insuficiente y resultaría en un importante déficit de no introducirse importantes cambios en nuestra estructura administrativa. Fue eliminada la plaza de vicepresidente ejecutivo con sueldo de $1,100. Se estableció un servicio de imprenta en nuestra asociación y consolidamos en una sola persona las plazas de Secretario Ejecutivo Auxiliar a Cargo de Comunicaciones, Secretario de Redacción del Boletín y Secretario del Presidente. Durante todo el año se preparó en nuestro departamento de comunicaciones todo el material impreso corriente incluyendo el Boletín Informativo y desde julio estamos imprimiendo en nuestra casa el Boletín.

Estamos satisfechos de que estos cambios nos han provisto más y mejores servicios a un costo más bajo. Hemos vivido un régimen de austeridad que nos ha permitido hacer sustanciales ganancias pero sólo a costa de la reducción de importantes programas. Hemos logrado reducir el ritmo de cambio en nuestro personal. Esto nos ha permitido aumentar el nivel promedio de experiencia aumentando así la eficiencia general. El espíritu de nuestro personal es cada día mejor, están trabajando satisfechos.

Damos las gracias a todos los miembros de la administración por su excelente labor y cooperación y en forma muy especial a los señores *Jorge Ramírez* y *Gregorio Díaz.*

Título 18 - Medicare - Honorarios Usuales y Acostumbrados

Ha estado muy activo el Comité de Utilización y Calidad de Servicios Médicos presidido por el Dr. *Juan F. Jiménez* creado para ayudar a la Triple S en este problema. Hemos visto progresos importantes en esto debido en buena parte a que existe una coordinación muy buena entre este comité y el Asesor Médico de la SSS, el doctor *Ovidio Rodríguez.* Este problema no será resuelto a satisfacción hasta que la SSS complete el estudio e implemente los pagos de honorarios usuales y acostumbrados según lo dispone el Título. Quiero expresar mi sentir de que ésto se ha ido haciendo con extremada lentitud y el temor de que esta tardanza resulte perjudicial. Exhortamos a los miembros de la Junta de Directores de la SSS para que usen su influencia para que ésto se logre a la mayor brevedad posible.

Título 19 - Medicaid

Hemos continuado aprovechando toda oportunidad para recordar a los legisladores, al Gobernador de Puerto Rico y a los funcionarios del Departamento de Salud que la ley federal exige que para el 1ro. de julio de 1972 nuestros beneficiarios Título 19 - Medicaid gocen del privilegio de libre elección de médico y hospital.

SSS

De la SSS hemos recibido como siempre la más decidida cooperación. Creo que tenemos que continuar la búsqueda de un mecanismo que permita la división vertical de los Planes Azules de Puerto Rico; es decir, que la SSS se ocupe de servicios profesionales exclusivamente y la Cruz Azul solamente ofrezca servicios institucionales. Solicito de la Cámara de Delegados la aprobación de una resolución al efecto.

Asociación Médica Mundial

Hemos continuado los esfuerzos para conseguir nuestra afiliación directa a la Asociación Médica Mundial y vemos buenas oportunidades de que ésto se consiga si persistimos en nuestro empeño.

Auxilio Médico Mutuo de la AMPR

La Junta del Auxilio Médico Mutuo presidida por el Dr. *Carlos E. Bertrán*, completó la revisión del reglamento el cual fue aprobado después de enmendado por la Junta de Directores de la AMPR. Se citó a una Asamblea General de la AMPR para la noche del 8 de noviembre corriente para considerar dicha revisión del reglamento. El nuevo reglamento fue aprobado.

Seguros

Ya están listos para ofrecerse los programas de seguros de vida a término, seguro de ingresos o (income protection plan) sueldo y riesgo médico mayor (major medical). Podrán llenar sus solicitudes durante los actos de la convención anual.

Fundación Médica de Puerto Rico

La Fundación Médica tiene ahora sus oficinas en nuestro edificio y cuenta con los servicios de una excelente secretaria. Ya se está terminando la preparación del Directorio Médico que será una publicación de gran utilidad para todos. Les exhorto a que contribuyan a la Fundación Médica generosamente para que el crecimiento de la Fundación se acelere para así aumentar el alcance y la potencialidad de

nuestros esfuerzos en el campo de la salud. Agradezcamos al Dr. *Egidio Colón Rivera* sus desvelos por la Fundación.

Concilio de Salud

Hemos encomendado al Dr. *Luis F. Sala* la representación de la AMPR en el esfuerzo por constituir sobre bases sólidas esta organización que debe servir de punto de enlace y de integración a todas las organizaciones que laboran en el campo de la salud.

Estamos muy satisfechos con el progreso logrado y agradecemos al doctor *Sala* su cooperación.

Boletín

Tuvimos serios problemas este año en dos aspectos del Boletín Médico; retrasos por parte de la imprenta y exceso de egresos sobre ingresos. Creemos que estamos en camino de resolver ambos problemas. Durante el mes de octubre logramos poner en el correo los números de julio y agosto, ambos impresos en nuestra casa con sustanciales economías. Estamos muy esperanzados de que la impresión del Boletín en nuestra prensa resuelva definitivamente los dos problemas apuntados arriba.

El aspecto científico del Boletín ha recibido excelente atención de la Junta Editora del Boletín Médico, presidida por el Dr. *Julio V. Rivera.*

Tribunal Examinador de Médicos

Recordarán ustedes que hace un año la AMPR consiguió que el Consejo de Educación Médica de la AMA aceptara que se admitieran a los internados acreditados de Puerto Rico a aquellos graduados de universidades extranjeras que hubieran aprobado el examen de reválida ofrecido por nuestro Tribunal Examinador, en lugar de requerírseles la aprobación del ECFMG. Este cambio ya fue instrumentado por el Tribunal y ayudará a resolver el problema de los internados en Puerto Rico.

Junta Estatal de Salud

Todos los partidos políticos respaldarán el establecimiento de una Junta Estatal de Salud. Citamos de los programas de los partidos principales para las elecciones de 1968:

Partido del Pueblo

"Proponemos la creación de una Junta Estatal para la planificación y desarrollo de las facilidades y servicios médicos en la que habrá participación de funcionarios públicos, los representantes de los servicios médicos privados, y de los ciudadanos usuarios de los servicios médicos. Esta Junta tendrá correspondientes juntas a los niveles regionales".

Partido Popular Democrático

"La creación de una Junta Estatal de Salud que asesore al Gobierno en los problemas de salud. Dicha Junta debe tener una amplia representación de comunidad y la mayoría de sus miembros la deben constituir los usuarios de los servicios médicos. El balance de sus miembros lo deben constituir representantes de las organizaciones profesionales y académicas que tratan con los problemas de salud".

Partido Nuevo Progresista

"Crearemos una Junta Estatal de Salud y Beneficiencia que gobierne los programas de salud pública y beneficiencia en Puerto Rico".

Legislatura

Como recordarán, la 5ta. Asamblea Legislativa aprobó en su 4ta. Sesión Ordinaria la creación del Departamento de Servicios Sociales al cual se transferirá la División de Bienestar Público del Departamento de Salud, cumpliéndose así una parte importante de nuestro programa legislativo. También se aprobó la Ley 168 de 1968, siguiendo un proyecto presentado por el Senador *Luis Muñoz Rivera.* Mediante esa ley se conceden incentivos para expansión, construcción y modernización de hospitales, casas de salud, clínicas y otras facilidades de salud.

Uno de los mayores logros de esta ley es la exención de todo tipo de contribución sobre los bonos, pagarés u otras obligaciones, así como sobre el 50 porciento de los intereses sobre los mismos emitidos durante el término de su exención, siempre que los fondos recaudados mediante la emisión sean utilizados para pagar los gastos de construcción o ampliación de la unidad hospitalaria.

Esta es la primera vez que en Puerto Rico se concede tal autorización a instituciones no gubernamentales.

Tenemos conocimiento de media docena de proyectos que han tomado vigoroso impulso con la aprobación de esta ley. Podemos esperar que esta ley lleve a un rápido aumento en el ritmo de la construcción de facilidades hospitalarias no gubernamentales.

Construcción Nuevo Edificio AMPR

El Consejo Judicial y Administrativo ha hecho

una excelente labor en esta encomienda. Esta tarde oiremos un informe a fondo de este proyecto.

Reevaluación Programas Internados Aprobados por el Tribunal Examinador de Médicos de Puerto Rico

El Consejo de Educación Médica ha estado muy activo en éste y otros programas encomendados por la Cámara. El informe del Consejo cubre estas materias adecuadamente.

Abortos Criminales

Hemos intensificado de nuestra parte los esfuerzos contra este mal. Hemos continuado enviando cartas explicativas a todas las personas que nos escriben. Además estamos escribiendo a los directores de los periódicos del pueblo o la ciudad de donde se recibe la carta.

Recientemente se ha iniciado por el CIC un esfuerzo por coordinar las actividades de la Policía, el Departamento de Salud, el Departamento de Justicia y la AMPR. Hemos ofrecido nuestra cooperación.

Hace unos días completamos la impresión de un panfleto en inglés en el que se explica la ilegalidad del aborto en Puerto Rico. Hemos enviado copia a todas las asociaciones estatales y de distrito y a sus comités de relaciones públicas. Enviaremos copias a todos los directores de periódicos en Estados Unidos.

Sugerimos nos remitan cualquier carta que reciban sobre abortos para nosotros contestarlas incluyendo el panfleto y aprovechando para dirigirnos a los periódicos y asociaciones médicas del área.

Programa de Salud de la AMPR

Nuestro programa de salud aprobado en la reunión de la Cámara de Delegados de Mayaguez fue presentado a los distintos partidos políticos en vistas públicas y privadamente lográndose que nuestras propuestas fueran incorporadas en su mayoría por todos los partidos políticos. En esta actividad recibimos entusiasta cooperación de numerosos compañeros médicos actuando como miembros del Partido de la Salud.

En el libro de informes de la Cámara encontrarán los programas de salud de los tres partidos principales.

Entrevistas con los Candidatos a la Gobernación en el Buzón de la Medicina

Esta importantísima iniciativa del Consejo de Relaciones Públicas que preside el Dr. *Ovidio Rodríguez*, ha permitido a nuestra Asociación conseguir el apoyo público de los candidatos a los principales aspectos de nuestro programa de salud. Felicitamos al Dr. *Rodríguez* por su brillante idea y agradecemos al doctor *William Galíndez*, Presidente Distrito Este, por su generosidad al permitirnos usar el Buzón de la Medicina por 6 semanas corridas para esta importante actividad.

Encontrarán el texto de las entrevistas con los candidatos de los principales partidos en el libro de informes a la Cámara de Delegados.

A continuación reproducimos las contestaciones del Gobernador Electo Sr. *Luis A. Ferré* a nuestras preguntas sobre importantes aspectos del programa de salud de la AMPR:

1. Libre Selección de Médico y Facilidades Hospitalarias.

Dr. *Martín A. Iguina Mora:* Dígame Don Luis, en la Plataforma del Partido Nuevo Progresista se habla sobre la libre selección de médicos. ¿Se vislumbra en esa libre selección de médicos que el paciente indigente que hoy en día recibe tratamiento en los hospitales gubernamentales tenga esa libre selección de médico?

Sr. *Luis A. Ferré:* Sí, eso es importantísimo. Yo he hablado con enfermos, con personas humildes, indigentes y también con los médicos, y todos están de acuerdo en que el paciente, cuando puede escoger su médico, realmente tiene mayor oportunidad de mejorar, de curarse, porque hay una cuestión sicológica envuelta en este asunto que tiene mucho que ver con esta selección. De manera, que dentro de nuestro Plan se debe de establecer un sistema integrado en el cual cada enfermo, sea indigente o sea pudiente, escoja su médico libremente.

2. Junta Estatal de Salud

Todos los candidatos a la gobernación respaldaron dicha junta en sus presentaciones en el Buzón de la Medicina. Citamos al Sr. *Luis A. Ferré:*

"Es nuestro propósito crear una Junta Estatal de Salud, y la Junta Estatal de Salud separará del Departamento de Salud los hospitales; los hospitales serán dirigidos, así como los centros de salud, por esta Junta Estatal. Esta Junta se compondrá del Secretario de Salud, de cuatro otros miembros que representen la Asociación Médica, la Asociación Dental y otros de los distintos grupos representantes de otras ramas de salud y cinco o seis ciudadanos particulares. De esta manera los hospitales serán dirigidos por esta Junta que estará totalmente divorciada de la política. De esa forma los servicios en los hospitales no serán dados por papelitos que den los

Alcaldes; sacaremos esta cuestión que occure hoy día que en los pueblos usan la salud como un medio de hacer política y eso creemos que es perjudicial al sistema de salud; y se pondrá en cada pueblo una Junta para que sea la que controle con la Junta Estatal el centro de salud que corresponda a esa ciudad. El Departamento de Salud entonces quedará para dirigir la salud ambiental, la salud creativa y la salud preventiva, además tendrá algunos hospitales especiales para tratamiento de enfermedades específicas que deben estar bajo el Departamento de Salud. Pero creemos que el Departamento de Salud debe estar divorciado de los hospitales y que esta Junta debe controlar todos los hospitales, tanto los de la comunidad que son hospitales de carácter no pecuniario, como los privados, como los del gobierno".

3. Ley 17 de 1965

Dr. *José A. Alvarez de Choudens:* Don Luis, en Puerto Rico se ha hablado del problema de la mala distribución de médicos, es decir, que hay pueblos, especialmente en la Cordillera, que tienen pocos o ningún médico en servicio. En el 1965 se pasó una Ley pretendiendo resolver este problema, en la cual se exigía como requisito para recibir la licencia regular que el médico diera un año de servicio en un pueblo de estos donde fuera asignado por el Secretario de Salud. Nosotros entendemos que es necesario estimular el que los médicos se establezcan en estos pueblos, pero creemos que ese mecanismo de obligar a alguien a ir a un pueblo no le permite en realidad desarrollar el cariño hacia ese pueblo que podría desarrollar de ir allí voluntariamente. Creemos que hay otros métodos mediante los cuales se puede motivar a que médicos jóvenes vayan a esos pueblos y que surja la posibilidad de que decidan voluntariamente quedarse allí, se casan allí quizás, y hagan de este pueblo su comunidad para siempre. ¿Qué ideas tiene usted en cuanto a los métodos correctos que deberían utilizarse en Puerto Rico para estimular el establecimiento de médicos jóvenes en estos pueblos para resolver este problema?

Sr. *Luis A. Ferré:* Yo estoy en contra del sistema de esclavitud, que realmente es el que constituye esta exigencia del gobierno de dar becas y exigir que la persona para pagar la beca tenga que rendir un servicio en determinado sitio o igualmente el médico que tenga que dar un año de servicio para conseguir su permiso. Yo creo que esto es malo; si el gobierno necesita médicos en determinados sitios debe pagar la cantidad de dinero que sea necesaria para atraer al médico a ese sitio de una manera voluntaria porque de otra manera no habría servicio adecuado. Eso está pasando en estos momentos en estos pueblos pequeños, los médicos ganan $750.00 mensuales; mucho menos que lo que ganan en San Juan, en donde ganan $1,200.00 al mes, y por lo tanto, un médico no está conforme con ir a ganar $750.00 mensuales sirviendo más de 48 horas a la semana y teniendo que estar de guardia dos días 24 horas. Eso también hace que el médico tan pronto se cumpla el año se va. Crea tambien un problema de falta de relación entre el médico y el paciente, que es una cosa mala. Hay que buscar la manera de que el médico se quede en estos pueblos. Por eso yo he sugerido que en los centros de salud que van a pasar de ser centros de política, se van a convertir en verdaderos centros de salud, puedan atender los pacientes particulares, de manera que muchos médicos que no puedan estar en el pueblo porque estén empleados con el gobierno, sí pueden estar privadamente y quedarse en estos pueblos porque pueden entonces utilizar estos centros de salud para sus pacientes privados y en cambio darle a estos centros de salud servicios que vendrían a llenar este hueco de manera voluntaria. Si el gobierno quiere tener médicos en estos sitios dentro del Departamento de Salud Pública, debe hacer pagos que sean adecuados y darle el tratamiento que estos médicos deben tener para que se sientan debidamente remunerados y puedan quedarse satisfechos en estos sitios. Creo que la economía que se hace es una economía equivocada, porque a la larga las enfermedades no se curan y se tarda más el enfermo en ser atendido en el sistema presente.

4. Conversión de Hospitales Gubernamentales a Hospitales de la Comunidad.

Sr. *Luis A. Ferré:* Convirtiendo poco a poco todos los hospitales de Puerto Rico excepto quizás los principales centros médicos, en hospitales de la comunidad, incluyendo los centros de salud de los pueblos, de manera que los médicos particulares puedan mandar a sus enfermos pagando a estos distintos hospitales y centros médicos. Este tiene un gran beneficio porque le da al gobierno un ingreso. Hoy en día todos estos centros de salud en los pueblos tienen camas, 10, 12, 14, 16, 20 camas que están 50 porciento sin uso y esto se podría aprovechar para darle ingreso al gobierno del uso de estas camas en estos hospitales, en estos centros de salud que hoy día están sin utilización completa.

5. Aumento Aportación Patronal Empleados ELA para Seguro Prepagado

Sr. *Pedro J. Ortiz Aponte:* Don Luis, el seguro

prepagado en Puerto Rico hasta la fecha ha logrado crecer en alguna medida mediante la contribución de los patronos en el pago de las primas. Tenemos el caso del Gobierno de Puerto Rico donde se da un seguro de salud a los empleados públicos, pero donde la aportación del gobierno es solamente de $2.00.

Sr. *Luis A. Ferré:* Bueno, a mí se me ha llamado la atención sobre eso. Considero que esta aportación del gobierno realmente es irrisoria y creo que si nosotros en los negocios particulares damos ocho, diez, doce, catorce dólares para estos servicios, pues no veo cómo un empleado público pueda conseguir los servicios adecuados con $2.00. Me parece que el gobierno debe de aumentar esta contribución en una forma realista. Naturalmente, de acuerdo con los ingresos del empleado público; personas que tienen ingresos grandes, pues no es necesario que se les dé mayor cantidad, pero sí el empleado, digamos, de $400 ó $500 hacia abajo necesita un reajuste en esta contribución.

6. Seguro Prepagado para Indigentes

Sr. *Pedro J. Ortiz Aponte:* Don Luis, usted mencionó el seguro prepagado al comenzar el programa, contempla usted, que pueda establecerse algún sistema mediante el cual el Gobierno de Puerto Rico adquiera seguros para una porción de la población, ya sea contribuyendo a la prima del seguro, comprando o aportando totalmente la prima del seguro de los planes prepagados que operen en Puerto Rico.

Sr. *Luis A. Ferré:* Dentro del plan general de salud que comprende en darle atención médica a todas las personas en Puerto Rico, aquellas que puedan pagar pagando un poco y las que no pueden pagar, indigentes, el gobierno debe pagar por ellos. El gobierno debe comprar los servicios para atender a estas personas indigentes que no pueden pagar.

7. Creación Departamento de Salud Mental

Dr. *Martín A. Iguina Mora:* Don Luis, ha contemplado el Partido Nuevo Progresista la creación de una División o de un Departamento de Salud Mental para tratar los problemas mentales de Puerto Rico?

Sr. *Luis A. Ferré:* Sí, es muy importante eso. Nosotros creemos que el Departamento de Salud se debe dividir posiblemente en una división que es de medicina preventiva, de curación, de saneamiento y otra división de la salud mental porque la salud mental es un área de gran importancia. Pero deben estar ambas bajo el Departamento de Salud; sí deben ser dos divisiones separadas o si es más tarde necesario se pueden dividir en un departamento especial de salud mental, aunque me parece que las dos cosas van tan unidas que me parece que debe haber por lo menos una unión arriba, pero sí hace falta darle gran atención y tengo entendido que muchos de estos planes de servicios médicos prepagados que no incluyen atención a la salud mental y eso es un área que deben de cubrir porque hoy en día hay un montón de problemas que tienen que ver con la adicción a drogas, con el alcoholismo, todas estas enfermedades que están creando mayor número de enfermos mentales. También creo que hay que darle más énfasis a la prevención en estas cuestiones que no debemos gastar nuestros esfuerzos en la curación, sino ir inmediatamente a la prevención de estas enfermedades mentales usando los medios que sean adecuados para ello.

8. Incentivo Construcción Hospitales No-Gubernamentales y Utilización Fondos Hill-Burton.

Sr. *Pedro J. Ortiz Aponte:* Así es que en la Plataforma del Partido Nuevo Progresista se contempla ofrecer incentivos en alguna forma, construir facilidades hospitalarias privadas y de la comunidad que puedan integrarse en los servicios privados y también a través de los planes prepagados.

Sr. *Luis A. Ferré:* A la larga no habrá más que un solo sistema en Puerto Rico, tiene que ser un solo sistema, se tienen que integrar las cosas públicas a las cosas privadas y tiene que ser todo un sistema integrado pero que se pague. Y ese sistema que se va a pagar o lo paga el gobierno en los casos de indigentes totalmente, o parcialmente en los casos en que estas personas tengan recursos moderados, o lo paga totalmente el paciente, si es un paciente que tiene los recursos económicos para hacerlo. Así es que nosotros contemplamos en este sentido una integración grande. Para ello tenemos que ayudar a la creación de más hospitales privados de tipo de la comunidad, es decir, que sean no pecuniarios, aunque también no hay inconveniente en que se ayude a los privados, porque hacen tanta falta los hospitales en Puerto Rico que el gobierno debe estimular la creación de nuevos hospitales. Yo soy miembro de la Junta del Hospital de Damas hace muchos años y en Damas hemos estado luchando por muchísimo tiempo para conseguir un nuevo hospital, por fin lo hemos conseguido. Desgraciadamente hasta ahora el gobierno ha venido utilizando todos los fondos federales del Hill-Burton, 90 porciento, para hospitales públicos que no darán servicio más que a los indigentes y entonces la clase media se ha quedado sin hospitales porque no ha habido dinero para hacer hospitales para la clase media. Ahora hay que cambiar

esto y hay que ayudar también a crear más hospitales para la clase media y después integrarlos todos de manera que den servicio uniforme. Me parece que el gobierno debe garantizar préstamos a médicos que quieran organizar nuevos hospitales, no veo por qué no podemos darle garantía por el gobierno a una venta de bonos que fuera por ejemplo libre de contribución, hubiera una garantía del gobierno. Y para que esos bonos se puedan vender en el mercado privado y se puedan entonces construir estos hospitales que son tan necesarios en Puerto Rico, hace falta un movimiento masivo y esto hay que hacerlo estimulando al sector privado para que invierta dinero también en la construcción de hospitales naturalmente que no sean con fines pecuniarios principalmente, que son los que queremos nosotros organizar.

Relaciones con el Departamento de Salud

Estas han sido muy cordiales. El Secretario ha estado disponible cuantas veces lo hemos solicitado. El nombró a los candidatos que le sometió nuestra Asociación para la Junta Consultiva, para un Plan de Salud Global, para el Comité de Términos de dicha Junta y para el Comité Asesor para la Ley 81 de 1967.

Las personas que nos representan en esos tres organismos han estado cooperando muy activamente con ellos.

Junta Consultiva Hospitales

La AMPR presentó una ponencia ante la Junta Consultiva del Plan de Hospitales y Facilidades Médicas el 18 de diciembre de 1967 (como lo ha venido haciendo año tras año).

Tenemos que informar que el programa propuesto por el Departamento de Salud fue aprobado por la Junta Consultiva sin cambio alguno, a pesar de los planteamientos de nuestra Asociación.

Junta de Planificación

El 18 de diciembre comparecimos ante la Junta de Planificación en las vistas públicas sobre el Proyecto del Programa Económico de cuatro años, a nombre de la Asociación Médica de Puerto Rico. Después de hacer una extensa exposición de los problemas de financiamiento de los programas de salud concluímos como sigue:

"El problema en consideración ante esta Hon. Junta de Planificación es cómo utilizar mejor los recursos disponibles para atender la "creciente demanda por obras y servicios que razonablemente se formulan anualmente". Hay que considerar cómo mejor utilizar los fondos disponibles para mejoras permanentes y al mismo tiempo recordar que cada nueva facilidad requiere una asignación anual adecuada para su funcionamiento eficiente. Para lograr que los fondos disponibles den el mayor beneficio posible a nuestro pueblo, la Asociación Médica de Puerto Rico hace las siguientes recomendaciones:

1. Que se cambie la filosofía programática del plan de construcción de facilidades hospitalarias para estimular al máximo la construcción de hospitales de la comunidad no lucrativos, utilizando los *fondos federales y estatales* asignados según este Programa Económico de Cuatro Años para parear las aportaciones de grupos bona-fide de la comunidad según la fórmula Hill-Burton de 1/3 parte por la comunidad y 2/3 partes de los fondos gubernamentales. De esta forma se construiría por lo menos una tercera parte más de camas con el mismo dinero, se atenderían más casos por año en las camas construídas a un costo por caso más bajo. Además, no sería responsabilidad directa del gobierno el presupuestar el gasto de funcionamiento de dichas instituciones que en la actualidad es de $10,000 anuales por cama.

Tenemos conocimiento de planes de expansión de hospitales no lucrativos que podrían hacerse realidad rápidamente de instrumentarse esta recomendación. Podemos mencionar los siguientes: Hospital Presbiteriano, Hospital del Maestro, Auxilio Mutuo, Ryder Memorial, Hospital de la Concepción, Hospital Santo Asilo de Damas, Hospital Bella Vista y Hospital Santa Rosa de Guayama. También hay grupos en Arecibo interesados en construir un hospital de la comunidad.

2. Que se instrumente a la mayor brevedad posible un plan que garantice a todos nuestros ciudadanos el derecho a libre selección de médico y facilidad hospitalaria. El financiamiento del 25 porciento de nuestra población más pobre está garantizado por el fondo Título 19 al cual el gobierno federal aporta $20 millones. El financiamiento del 25 porciento remanente se puede hacer usando el remanente de los fondos del Departamento de Salud que se utilizan para medicina asistencial aumentados por aportaciones patronales y pequeñas aportaciones de los beneficiarios cuando sus ingresos lo justifiquen. Esta medida es obligatoria para el 1972 para los beneficiarios del programa Medicaid-Título 19. No hay necesidad de esperar hasta entonces y redundaría en grandes beneficios el adelantar esa fecha lo más posible.

3. Propulsar la más rápida implementación de la Ley 81 de 1967 para conseguir que la operación de los hospitales gubernamentales existentes se haga a la mayor brevedad posible bajo el principio de "libre elección" y dentro del concepto de "hospital de la comunidad".

4. Propulsar que allí donde haya escasez de camas y no se logre construir hospitales de la comunidad, se instrumente la Operación Manos a la Obra de nuestro gobierno ofreciendo a los interesados en construir hospitales privados, incentivos similares a los que se ofrecen actualmente a las industrias nuevas.

5. Propulsar un plan mediante el cual se ayude a nuestra clase media a financiar sus servicios de salud haciendo nuestro gobierno aportaciones para la compra de seguro médico-hospitalarios prepagados voluntario de acuerdo con los ingresos de la familia. De inmediato recomendamos se aumente la aportación del gobierno para los empleados gubernamentales que compren su seguro médico del nivel actual de $2.00 al de $3.00 según lo autoriza la ley vigente.

Conclusión

La instrumentación de las medidas propuestas redundaría en la mejor utilización de los fondos disponibles liberando eventualmente recursos para la lucha contra los demás problemas de salud que no están siendo atendidos debidamente al presente tales como delincuencia juvenil, drogas, alcoholismo, parásitos, inspección de alimentos, mataderos, contaminación de agua y aire, salud mental, bienestar público, enfermedades venéreas, tuberculosis, vacunación y otros.

Nuestras propuestas ofrecen la solución (en el campo de la salud) a la paradoja económica que ha apuntado la Junta de que "según crece la economía general de Puerto Rico crece la demanda por obras y servicios, pero no se logran incrementos en los ingresos del gobierno que permita atender el aumento en la demanda por obras y servicios". Quizás sea este el patrón a seguirse en otras áreas de la gestión gubernamental para lograr "hacer más con menos".

La Asociación Médica de Puerto Rico respetuosamente solicita cuidadoso estudio de sus recomendaciones. Estaremos disponibles cuando sea necesario para explicarles más detenidamente si así lo desean los miembros de la Honorable Junta de Planificación."

Esta ponencia fue bien acogida y estamos seguros que fue decisiva en conseguir el apoyo de la Junta al proyecto de incentivos a hospitales que se convirtió en la Ley 168 de 1968.

Consejo Superior de Enseñanza

En febrero representamos a nuestra Asociación en vistas públicas ante el Consejo Superior de Enseñanza. Nuestras ideas tuvieron buena acogida. Más tarde acompañamos a nuestro compañero el Dr. *Roberto Busó*, Presidente del Consejo, a una conferencia con el Secretario de Salud a discutir medios para expandir las facilidades para entrenamiento de enfermeras y otro personal paramédico y la instrumentación de un curso especial para habilitar al gran número de médicos que no han podido aprobar sus exámenes de capacitación.

Consejos y Comités de la AMPR

Hemos tenido excelente cooperación de todos los consejos. La labor desplegada por éstos está detallado en la Sección de Informes.

Sociedad de Esposas de Médicos

De nuestras esposas hemos recibido excelente cooperación. A principios de año nos regalaron un sistema de micrófono, amplificadores y altoparlantes. Hace poco nos anunciaron un donativo para la Fundación Médica y otro para la remodelación del Club Médico. Han cooperado entusiastamente cuantas veces lo hemos solicitado. Queremos expresarles nuestro agradecimiento.

Minas de Cobre

En diciembre celebramos vistas públicas sobre la propuesta explotación de los yacimientos de cobre en Utuado y Adjuntas. Se llegó a la conclusión de que las minas ofrecerían peligros definitivos en cuanto a contaminación de aire y aguas. Se recomendó al gobernador que no autorizara la explotación sin antes hacer públicas las medidas que se tomarían para evitar esos peligros.

Secciones de la AMPR

Como en años anteriores hemos tenido secciones muy activas y otras en estado durmiente. Todavía no se ha encontrado la fórmula que logre que todas las secciones tengan una vida efectiva. Merece especial mención la sección de Psiquiatría, Neurología y Neurocirugía que bajo la presidencia del doctor *Iván Pérez Nazario* estuvo muy activa. Esta sección ofreció recientemente un lucido homenaje al Dr. *Fernando J. Cabrera*, Presidente de esta Cámara, en el Hotel San Juan. Los fondos sobrantes de esta ac-

tividad serán dedicados por la sección a una campaña para conseguir la inclusión de cubierta ambulatoria y hospitalaria para enfermedades mentales en los planes de seguros prepagados de salud.

Sociedades de Distrito de la AMPR

Estas estuvieron muy activas este año. La Sociedad del Distrito Sur bajo la presidencia del Dr. *Antonio Fernández Durán* abrió brecha al enmendar su reglamento para autorizar y en septiembre instalar el primer sub-distrito de nuestra Asociación en el área de Guayama. Ya se ha podido notar valiosos frutos de esta iniciativa de los compañeros del sur.

El Dr. *William Galíndez* ha dirigido a la Sociedad del Distrito Este en un activo y variado programa. La Convención Semi-Anual celebrada en el Hotel Conquistador fue sobresaliente. Debemos agradecer al Distrito Este el donativo a la Asociación Médica de una excelente copiadora y de los costos del almuerzo durante la toma de posesión de nuestro nuevo presidente.

El Distrito Norte ha celebrado numerosas actividades profesionales y actos de acercamiento entre los compañeros bajo la presidencia del Dr. *Antonio Lens Aresti.*

Bajo el liderato del Dr. *Jaime Reteguis,* el Distrito Oeste ha tenido un año brillante. El acto cumbre del año lo fue la extraordinaria labor de preparación de la Convención Semi-Anual en Mayagüez en julio.

El detalle de la labor de los distritos lo encontrarán en la sección de informes.

Boletín Informativo

Nuestro régimen de austeridad presupuestal nos hizo reducir en número los boletines informativos además de eliminar casi por completo las circulares. El Boletín se imprime ahora en nuestra casa con nuevo formato experimental. Esta Cámara debe proveer a la nueva Junta de Directores con fondos adecuados para poder mantener informados adecuadamente a nuestros asociados.

Aspectos Eticos de Prácticas Contractuales en el Hospital Auxilio Mutuo

A petición de los miembros de la facultad activa del Auxilio Mutuo la Junta de Directores celebró una reunión especial para oirlos. Se hicieron consultas a nuestros asesores legales y al Consejo Judicial de la AMA.

A base del resultado de las consultas la Junta de Directores decidió dejar en suspenso la Resolución VII-68-6 y devolverla a la Cámara para reconsideración. A petición del presidente, el Comité de Etica estudió de nuevo el caso después de recibirse documentación adicional de los compañeros médicos de la Facultad Médica del Auxilio Mutuo.

El Comité de Etica informó que de los puntos que existía de conflicto de ética médica se han subsanado dos de cuatro. Un tercer punto (la subrogación) está siendo resuelto mediante el mecanismo de una fundación.

El Comité recomendó mayor representación de los médicos a la junta de directores de la Fundación.

El cuarto punto que se refiere a la libre selección de médico requiere en la opinión del Comité una definición clara de lo que es "libre selección de médico" por parte de la Cámara de Delegados.

En nuestra opinión no ha sido aclarado aún si las condiciones del contrato existente entre el Auxilio y los médicos "tiende a interferir con o impiden el libre y completo ejercicio del juicio y destrezas del médico o tienden a causar un deterioro de la calidad de los servicios médicos.

Recomiendo que se nombre un comité de la Cámara de cinco personas para que después de cuidadoso estudio de la Sección 6 del Código de Etica presente, presente una definición clara y específica que sirva de guía al Comité de Etica.

Conclusion

Este es un resumen a grandes rasgos de las actividades del año.

Con esto llega a su fin la labor que en nombre de ustedes, los que me hicieron el gran honor de elegirme a la Presidencia, he tratado de hacer. Aunque hemos pasado algunos momentos amargos, he disfrutado este año y puedo decir con sinceridad que les agradezco la oportunidad que me dispensaron. Mi agradecimiento también a tantas personas en la Junta de Directores, los Distritos, Consejos, Comités, Secciones y en las agrupaciones aliadas que me ayudaron tan efectivamente y que hicieron posible lo que hayamos podido lograr en el cumplimiento de nuestra misión con la Asociación.

Al tomar posesión de la presidencia el 18 de noviembre del año pasado les dije que el 1968 sería "El Año de la Oportunidad". Anticipaba importantes cambios por lo que propuse que "Dediquemos nuestros esfuerzos con el favor de Dios, a que Puerto Rico logre esa oportunidad que es suya, por ser oportunidad

de nosotros los médicos".

Después de la reunión de julio en Mayagüez dedicamos buena parte de nuestro esfuerzo a "venderle" a los partidos políticos el Programa de Salud de nuestra Asociación. Tuvimos considerable éxito en ésto como puede verse en los programas de salud de los principales partidos (incluídos en los suplementos). Aquellos puntos que no logramos fueran incluídos en su plataforma por el partido del gobierno fueron incluídos por el candidato a gobernador en su entrevista en televisión en el Buzón de la Medicina. Merecen nuestra felicitación los compañeros médicos del partido triunfador que lograron que su partido adoptara casi en su totalidad el programa de nuestra Asociación.

Quiso el Señor que nuestro pueblo optara por un cambio de gobierno y elevara al poder al partido que casi en su totalidad adoptó nuestro programa, haciendo realidad la oportunidad que yo pensé nos ofrecería el año eleccionario 1968.

Compañeros, ahora nos toca recoger los frutos para beneficio de nuestro pueblo. Esta etapa ha de ser difícil y requerirá grandes esfuerzos. Les invito a que todos nosotros actuando como miembros del Partido de la Salud se comprometan en su conciencia, a dedicar a esta misión todos los esfuerzos, energías y sacrificios que sean necesarios para que respaldando a nuestro nuevo presidente, a la Junta de Directores y al nuevo gobierno, se instrumente vigorosamente nuestro Programa de Salud para beneficio del bienestar y la salud de nuestro querido pueblo de Puerto Rico.

¡Así lo quiera el Señor!

CASE REPORT

HYPOTONIC DUODENOGRAPHY

José A. Berlingeri, MD
Laszlo Ehrlich, MD, FACP, FACR

Hypotonic duodenography (H.D.) was designed by Liotta, an Argentine surgeon in 1955 (2). The principle of the method consists of transitory supression of the peristaltic activity of the duodenum by injecting an anticholinergic agent followed by the introduction of barium through a tube into the second portion of the duodenum and the insufflation with air through the same tube. The idea is to depict the roentgenological anatomy of the second and third portions of the duodenum in minute detail which would reveal: 1) the normal appearance; 2) any intrinsic pathology; 3) pathology of the head of the pancreas with which the duodenum is in intimate contact. This method was tested in collaboration by Mallet - Guy, and by Jaquement in France in 1960 (3) with such promising results that the same French authors adopted H. D. as a routine method in 500 cases (4). In the U. S. A., H. D. was introduced by Bilbao and her collaborators in 1967 (1) using propantheline bromide as a pharmacodynamic agent.

We tried out their technique five months ago in a case of post-bulbar ulcer; however, we ran into difficulties with the introduction of the tube. At the suggestions of Dr. Pablo C. Morales we modified the technique by omitting intubation. We have tried this "tubeless" H. D. once and with success, which is the main reason to publish this article.

Case Report

A 50-year old white male, a known asthmatic complaining of epigastric pain off and on for the past 12 years. Upper G. I. Series at another hospital in 1960 was reported negative. He was seen at the allergy clinic of the outpatient department of Veterans Administration for "chest pain of perennial duration". No weight loss had occurred. His blood pressure was 160/100. The physical examination was essentially negative. An upper G. I. Study was ordered to rule out hiatal hernia and/or peptic ulcer. The study was performed at the Out-Patient Department and was referred to the hospital for a re-examination with special attention to the descending duodenum. (See left side of figure 1.) Re-examination was performed at the hospital and was reported as negative for hiatal hernia but was not checked for reflux due to technical difficulties. However, a suspicious segment of the second portion of the duodenum in the post-bulbar area was seen, (right side of figure 1), and hypotonic duodenography was advised. Hypotonic duodenography was performed using the technique described below.



Fig. 1: *The left half of this composite picture show the first G. I. study at the out-patient department. Th upper arrow points to the apparent dilatation of the duo denal bulb. The lower arrow suggests possible post-bulba ulcer. The right half of the picture shows the second G. I study at the hospital, one month later, essentially simila in appearance, allowing no definite diagnosis.*

From the Department of Radiology, UPR School of Medicine of Puerto Rico and the Veterans Administration Hospital, San Juan, Puerto Rico.

in order to introduce as much air as possible while drinking the barium. We checked the progress of the barium in the recumbent right oblique position, waiting for the relaxing effect of the propantheline bromide.

According to Bilbao this is supposed to take place in about five minutes. In our case, nothing unusual happened for about twenty minutes. Then, suddenly, the lumen of the second portion of the duodenum began to widen; immediately, we turned the patient into Hampton's position (patient supine with elevation of the side towards the observer). Within two or three minutes, the air passed into the duodenum from the antrum and we obtained an excellent double contrast effect (figure 2). The patient had no complaint referable to the possible side effect of propantheline bromide.



Fig. 2: *Hypotenic duodenography (spot films). A) Air contrast showing the normal duodenal bulb and second portion of the duodenum. B) Lateral view of the same: Normal post-bulbar area.*

Discussion

In our routine upper gastrointestinal examinations we take a minimum of 10 films in the recumbent position for the study of the horizontal motion of the stomach and the duodenum. Due to the rapidly passing peristalsis and perhaps also some peculiarity of the duodenum, the roentgen appearance of the second portion of the duodenum exhibits a great deal of variation. Usually, however, we obtain two or three views in which the duodenal curve is adequately outlined. In the case presented above we had more than twenty films but none of them visualized the second portion in a satisfactory manner. The possibility that a small post-bulbar ulcer might be present was entertained which would explain the unusually irritability of the second portion of the duodenum. H. D. as shown in the figure 2 demonstrated a perfectly normal anatomy of the area in question. H. D., however, finds its best indication concerning the pancreas. Liotta and the French authors (3, 4) describe numerous major and minor signs which enabled them to make the correct diagnosis in 85 percent of cases proven by surgery in 150 patients. We intend to use the method of H. D. in the future for detection of pancreatic pathology since this organ as a rule escapes roentgen diagnosis when conventional radiology is used. We wish to mention in passing that the once famous Frostberg sign (the inverted 3) is considered a very unreliable criterion of any pathology. H. D., by exaggerating the roentgen appearance of the duodenal curve is bound to bring about anything abnormal to better advantage. We need more experience to prove the actual value of our simplified method of H. D.

Summary

A case is presented in which two conventional X-Ray examinations failed to rule out a lesion of the second portion of the duodenum. A simplified method of hypotonic duodenography (tubeless) was successful in demonstrating the absence of abnormality in the suspected area.

Resumen

Se presenta un caso en el cual dos estudios radiológicos convencionales no pudieron demostrar una lesión en la segunda porción del duodeno. Un método simplificado de duodenografía hipotónica (sin intubación) fue satisfactorio para excluir la patología o anormalidad sospechada.

Reference

1. Bilbao, M. K., Frische, L. H., Dotter, C. T. and Rosch, J.:

Hypotonic duodenography, Radiology, 89: 438, 1967.
2. *Liotta, D.:* Pour le diagnostic des tumeurs du pancreas: La duodenography hypotonic. Lyon. Chir. 50: 445, 1955.
3. *Mallet-Guy:* Interest de la duodenography hypotonic dans le diagnostic des pancreatitis chronic. Journal de Radiol. 41: 170, 1960.
4. *Mallet-Guy, P. et Jaquemet, P.:* Resultats de 500 cases duodenographic hypotonic. Journal de Radiol. 44: 249, 1963.

APUNTES BREVES:

IMPACTO DE LA DESNUTRICION DEL NIÑO PRE-ESCOLAR EN LA ECONOMIA DE PUERTO RICO

N. A. Fernández López, MD

El niño pre-escolar puertorriqueño, entre 1 y 6 años de edad, es víctima frecuente de una alimentación pobre la cual influye adversamente sobre su desarrollo físico y mental. Después del primer año de vida es común observar, principalmente en nuestras clases socio-económicas bajas y media, un retardo progresivo en la estatura y el peso de los niños (1, 2, 3, 4, 5). De igual manera, se ha demostrado científicamente que la desnutrición durante los primeros años de la vida puede inducir limitaciones permanentes en la inteligencia y en la capacidad de aprendizaje (6, 7). Es decir, que la desnutrición infantil del presente está imponiendo serias desventajas sobre nuestra sociedad del futuro.

La ineludible verdad de que los niños lleguen a convertirse en adultos careciendo de una completa habilidad para desarrollar su potencial intelectual al máximo, introduce un nuevo y peligroso aspecto que puede afectar en forma negativa el creciente desarrollo económico de nuestro país. Sin duda alguna, el efecto deteriorante de la desnutrición haciendo que las personas sean menos productivas, menos capaces física y mentalmente, y más susceptibles a la enfermedad, tiene que representar una pérdida de dinero considerable.

Las razones que producen la desnutrición del niño pre-escolar son variadas: El niño después del primer año de vida presenta una desaceleración en su crecimiento la cual redunda en una menor demanda de alimentos. Además, desarrolla otros intereses al relacionarse con objetos, amigos, juegos y otros aspectos del medio-ambiente que le rodea. Estos hechos predisponen al desarrollo de un apetito caprichoso ya que disminuye su interés por la comida. Los padres, por regla general, desconocen la forma efectiva de manejar este apetito caprichoso y se desesperan o se descuidan. Ambos extremos conducen a una peor alimentación del niño.

Por otro lado, a nivel gubernamental existen ciertas normas y programas que deben fortalecerse y expandirse y para ello hace falta aumentar la comunicación entre los legisladores y los profesionales interesados en mejorar la nutrición de nuestros niños. Es de imperiosa necesidad también una mayor coordinación entre las diversas agencias gubernamentales pertinentes, tales como Salud, Agricultura, Fomento Económico y otras, para poder evaluar el efecto negativo de la desnutrición pre-escolar en el desarrollo económico de Puerto Rico y para hacer disponibles los alimentos nutritivos necesarios a un precio razonable sobre una base económica factible. La desnutrición pre-escolar ya existente empeorará si no se modifica la naturaleza de los alimentos producidos en Puerto Rico tomando en consideración su contribución nutritiva y controlando su precio para que la gran mayoría de nuestro pueblo pueda comprarlo.

Un ejemplo típico de esta situación lo constituye el elevado precio de la leche fresca en Puerto Rico lo que hace que muchas familias de nuestras clases media y baja no la puedan comprar. Este alimento, sin duda alguna, constituye el componente principal de la alimentación infantil y pre-escolar.

El efecto económico adverso de la desnutrición pre-escolar puede estimarse en términos monetarios tomando en consideración las siguientes situaciones que se desprenden de la misma: formación de adultos con limitaciones físicas y mentales, reducción en la esperanza de vida de las personas, disminución en la productividad en el trabajo, absentismo, mayor susceptibilidad a contraer enfermedades y mayores gastos en la prevención y tratamiento de éstas.

Los programas gubernamentales que requieren mayor respaldo económico y expansión son aquellos destinados a proveer mejor alimentación y educación nutricional a nuestros niños de las clases menos privilegiadas como son el programa de Estaciones de Leche del Departamento de Salud, el programa de Comedores Escolares, y los nuevos programas dirigidos a niños

Del Departamento Estatal de Salud, San Juan, Puerto Rico.

pre-escolares. Estos infantes y niños de nuestras clases media y baja son los que, en estudios repetidos hechos en nuestra población, muestran siempre una considerable prevalencia de desnutrición progresiva por la falta de recursos y por su mayor susceptibilidad a enfermedades infecciosas y parasitarias. Sus principales deficiencias son las vitaminas A y B_2 (riboflavina), proteínas de buena calidad y calcio. Sin duda alguna, un mayor consumo de leche o de algún producto substitutivo similar a ésta en valor nutritivo podría aportarles estos nutrimentos en cantidades suficientes para eliminar tales creencias.

Resumiendo, si observamos la realidad de nuestro panorama económico y nutricional, es obvio que una mayor integración de ambos factores constituirá la solución más saludable para nuestros niños del presente y nuestros líderes del futuro.

Summary

According to recent surveys in our population, pre-school children have been found to suffer from progressive retardation in growth and development. Also, it has been clearly established that undernutrition during infancy and early childhood is accompanied by limitations in intellectual development and learning ability. The adverse effect of these physical and mental limitations on our future society and on the economic growth of Puerto Rico will be inevitable unless a more integrated planning between various governmental and private agencies is achieved.

Among the deleterious effects of malnutrition on economic growth are: reduced physical and mental ability, limited life expectancy, decreased worker's productivity, lowered worker's resistance to disease and absenteeism. In order to ameliorate these, nutritional and economic improvement must go together.

References

1. *Fernández, N. A. et al:* Nutritional status of people in isolated areas of Puerto Rico. Survey of Barrio Mavilla, Vega Alta, P. R., Am. J. Clin. Nut. 17: 305-316, 1965.
2. *Fernández, N. A. et al:* Nutritional status of people in isolated areas of Puerto Rico: Survey of Barrio Naranjo, Moca, P. R., Am. J. Clin. Nut. 19: 269-284, 1966.
3. *Fernández, N. A. et al:* Nutritional status of people in isolated areas of Puerto Rico, Survey of Barrio Duey Alto, San Germán, P. R., Arch. Lat. de Nut., 17: 215-239, 1967.
4. *Fernández, N. A. et al:* Nutritional status of people in isolated areas of Puerto Rico: Survey of Barrio Masas 2, Gurabo, P. R., Bol. Asoc. Méd. P. R. 59: 503-513, 1967.
5. *Fernández, N. A. et al:* Nutritional status of people in areas of Puerto Rico: Survey of Juana Matos Slum, Am. J. Clin. Nut., June 1968, In press.
6. *Coursin, D. B.:* Effects of undernutrition on central nervous system function, Nutrition Reviews, 23: 65-68, 1965.
7. *Cravioto, J.:* Protein-calorie malnutrition and psychobiological development in children, Bol. Ofic. Sanitaria Panamericana 61: 285-306, 1966.

Q *What is the treatment of choice for a patient 72 years of age who suffers severe pain in his legs after walking approximately one city block? The dorsalis pedis pulses are not palpable but there is no coldness or cyanosis of the toes.*

MD, Arecibo

A Your patient suffers from intermittent claudication most likely due to peripheral arteriosclerosis obliterans. It would appear that surgery, vascular or sympathetic, would not be helpful since the arteriosclerotic process extends diffusely thru the small vessels of the leg.

Anti-coagulation therapy may be tried, since in some instances it seems to help relieve some of the associated tingling of the feet, but this must be used cautiously. Reduction of intake of animal fat and elimination of smoking may be suggested as general measures. Taking several alcoholic drinks or using some skin vasodilator may be helpful.

But the best treatment remains the strict adherence to hygienic care of the feet and regular exercise. Washing with mild soap, using comfortable shoes and avoiding injury. Heat to the feet should be avoided.

Q *I have had several patients who have experienced swelling of the feet and ankles periodically. Extensive investigation has failed to reveal heart, kidney or endocrine trouble. What is the cause of this and how should one treat this?*

MD, Santurce

A Pedal edema is very common in both men and women, but especially in the female. It is orthostatic or gravitational edema and usually occurs during periods of little physical activity. It may at times be painful.

These patients should reduce their salt intake and may be given oral diuretics when necessary. Lifting the legs to nearer heart level tends to reduce the swelling. Also some patients are helped by elastic support hose.

Physicians are invited to send questions to the Boletín and to partake in this educational venture. The name of the physician sending the question will be omitted unless otherwise specified.

NOTICIAS

Locales

Enero 29 - Conferencia Alex J. Steigman, MD, Profesor de Pediatría - Anfiteatro Hospital Municipal - *11:00 am.*

Enero 29 - Alex J. Steigman, MD, Conferencia seguida de coctel - Asociación Médica - *8:00 pm.*

Enero 31 - Convención Médicos Graduados de México - Panel de Obesidad: Nelson Fernández López, MD, Julio *8:00 pm.*

Febrero 7 - Sesión Científica Convención Anual del Distrito Norte - Casa del Médico, Arecibo.

Febrero 12-14 - Sesiones Científicas Convención Anual de Pediatría - Conferenciantes Invitados: Dr. Chester Edelmann, Dr. Frank A. Oski, Dr. Dan McNamara - Hospital Universitario, 9:00 am: Asociación Médica, *8:00 pm.*

Febrero 25-1ro. marzo - Convención Anual Colegio Americano de Cirujanos - Caribe Hilton.

Febrero 25 - Conferencia Dr. Ed Taylor - Sección de Siquiatría "Sicoterapia en Sicóticos" - AMPR - *8:00 pm.*

Febrero 26 - Conferencia Dres. David Myers y Robert Woolfson - Sección de Otorrinolaringología - Conferencia seguida de coctel - AMPR - *8:00 pm.*

Marzo 4-5 - Sesiones científicas Colegio Americano de Cardiología - Hotel Americana - *8:30 am.*

Marzo 10 - Postgraduate Course in Musculo-Skeletal Diseases-Dr. René Cailliet "Foot and Ankle Pain" - AMPR - *8:00 pm.*

Marzo 10 - Sesión Científica - Convención Academia Medicina General - *8:00 am-12:30 pm; 7:30 pm-10:30 pm.*

Marzo 11 - Postgraduate Course in Musculo-Skeletal Diseases - Dr. René Cailliet "The Low Back Syndrome" - AMPR - *8:00 pm.*

Marzo 11 - Sesión Científica Convención Academia Medicina General - *8:30 am-6:00 pm.*

Marzo 12 - Postgraduate Course in Musculo-Skeletal Diseases - Dr. René Cailliet "Shoulder Pain" - AMPR - *8:00 pm.*.

Marzo 13 - Postgraduate Course in Musculo-Skeletal Diseases-Dr. René Cailliet "Neck and Arm Pain" - AMPR - *8:00 pm.*

Marzo 13 - Sesión Científica Convención Sección Obstetricia y Ginecología - San Jerónimo - *2:00 pm.*

Marzo 13 - Sesión Científica Convención Academia Medicina General - San Jerónimo - *8:30 am.*

Marzo 14 - Postgraduate Course in Musculo-Skeletal Diseases - Dr. René Cailliet "A Live Patient Clinic" - Hospital de Veteranos - *9:00 am.*

Marzo 14 - Sesión Científica Convención Sección Obstetricia y Ginecología - San Jerónimo - *9:00 am.*.

Marzo 15 - Sesión Científica Convención Sección Obstetricia y Ginecología - San Jerónimo - *9:00 am.*

Nacionales

THE MOUND PARK HOSPITAL FOUNDATION AND THE COLLEGE OF MEDICINE, UNIVERSITY OF FLORIDA

The Mound Park Hospital Foundation, with the joint sponsorship of the College of Medicine of the University of Florida, and the cooperation of the Florida Psychiatric Society, the Florida Academy of General Practice and the Florida Medical Association, is pleased to announce a Postgraduate Course in ANXIETY AND DEPRESSION: A MODERN INTERPRETATION - on dates May 1 to 3, 1969 inclusive. A descriptive brochure will be mailed as soon as completed.

All classes, meetings and clinical conferences though informal, will be consistent with the highest level of teaching practice, and this program is acceptable for 18 Accredited Hours by the American Academy of General Practice. The Teaching Faculty will be composed of Selected Guest Lecturers and qualified Staff members.

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el número de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), e iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas médicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pilar Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras, Están semiequipadas. Sitio céntrico próximo a las calles principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas, Apartado 20267, Río Piedras, P. R., Teléfono 766-7398.



Did the Eaton Agent Invade the Barracks?

It could easily happen—a barracks of basic trainees is highly vulnerable to respiratory infection. But why wonder about the possibility of Eaton Agent in "recruit pneumonia"? Order, DECLOMYCIN® Demethylchlortetracycline, the broad spectrum antibiotic proved effective against Eaton Agent in double blind, controlled studies[1,2] at Parris Island and Great Lakes Naval Training Center.

Contraindication: History of hypersensitivity to demethylchlortetracycline.

Warning—In renal impairment, usual doses may lead to excessive accumulation and liver toxicity. Under such conditions, lower than usual doses are indicated, and, if therapy is prolonged, serum level determinations may be advisable. A photodynamic reaction to natural or artificial sunlight has been observed. Small amounts of drug and short exposure may produce an exaggerated sunburn reaction which may range from erythema to severe skin manifestations. In a smaller proportion, photoallergic reactions have been reported. Patients should avoid direct exposure to sunlight and discontinue drug at the first evidence of skin discomfort. Necessary subsequent courses of treatment with tetracyclines should be carefully observed.

Precautions—Overgrowth of nonsusceptible organisms may occur. Constant observation is essential. If new infections appear, appropriate measures should be taken. In infants, increased intracranial pressure with bulging fontanels has been observed. All signs and symptoms have disappeared rapidly upon cessation of treatment.

Side Effects—Gastrointestinal system—anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. Skin—maculopapular and erythematous rashes. A rare case of exfoliative dermatitis has been reported. Photosensitivity; onycholysis and discoloration of the nails (rare). Kidney—rise in BUN, apparently dose related. Hypersensitivity reactions—urticaria, angioneurotic edema, anaphylaxis. Teeth—dental staining (yellow-brown) in children of mothers given this drug during the latter half of pregnancy, and in children given the drug during the neonatal period, infancy and early childhood (up to 12 years). Enamel hypoplasia has been seen in a few children. If adverse reaction or idiosyncrasy occurs discontinue medication and institute appropriate therapy.

Average Adult Daily Dosage: 150 mg q.i.d. or 300 mg b.i.d. Should be given 1 hour before or 2 hours after meals, since absorption is impaired by the concomitant administration of high calcium content drugs, foods and some dairy products.

Capsules: 150 mg; **Tablets:** film coated, 300 mg, 150 mg, and 75 mg of demethylchlortetracycline HCl.

Eaton Agent Dosage: The average adult daily dosage is 900 mg, given in 3 divided doses for 6 days.

1. Kingston, J.R.; Chanock, R.M.; Mufson, M.A.; Heilman, L.P.; James W.D.; Fox, H.H.; Manko, M.A., and Boyers, J.: Eaton Agent Pneumonia. *JAMA* 176:118 (Apr. 15) 1961.
2. Maiel, J.C.; Pierce, W.E.; Crawford, Y.E., and Farmer, R.G.: Demethylchlortetracycline in Nonbacterial Pneumonia. *Arch. Int. Med.* 111:547 (May) 1963.

DECLOMYCIN®
DEMETHYLCHLORTETRACYCLINE

DECLOMYCIN Tablets, 300 mg	**48's**	**FSN 6505-782-6485**
DECLOMYCIN Tablets, 150 mg	**100's**	**FSN 6505-890-2081**
DECLOMYCIN Syrup, 75 mg/5 cc.	**16 oz.**	**FSN 6505-890-1763**

LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

421-7—4794

...once-popular treatment for back pains ...as to have the seventh son of a seventh son ...and or walk on the patient's back.





The pain of earache was allegedly relieved by holding a hot roasted onion to the ear.

...or headache, a sovereign remedy was ... wear a snakeskin round one's head.



A realistic approach to pain relief



Empirin'®

Compound with Codeine Phosphate gr. 1/2 No. 3

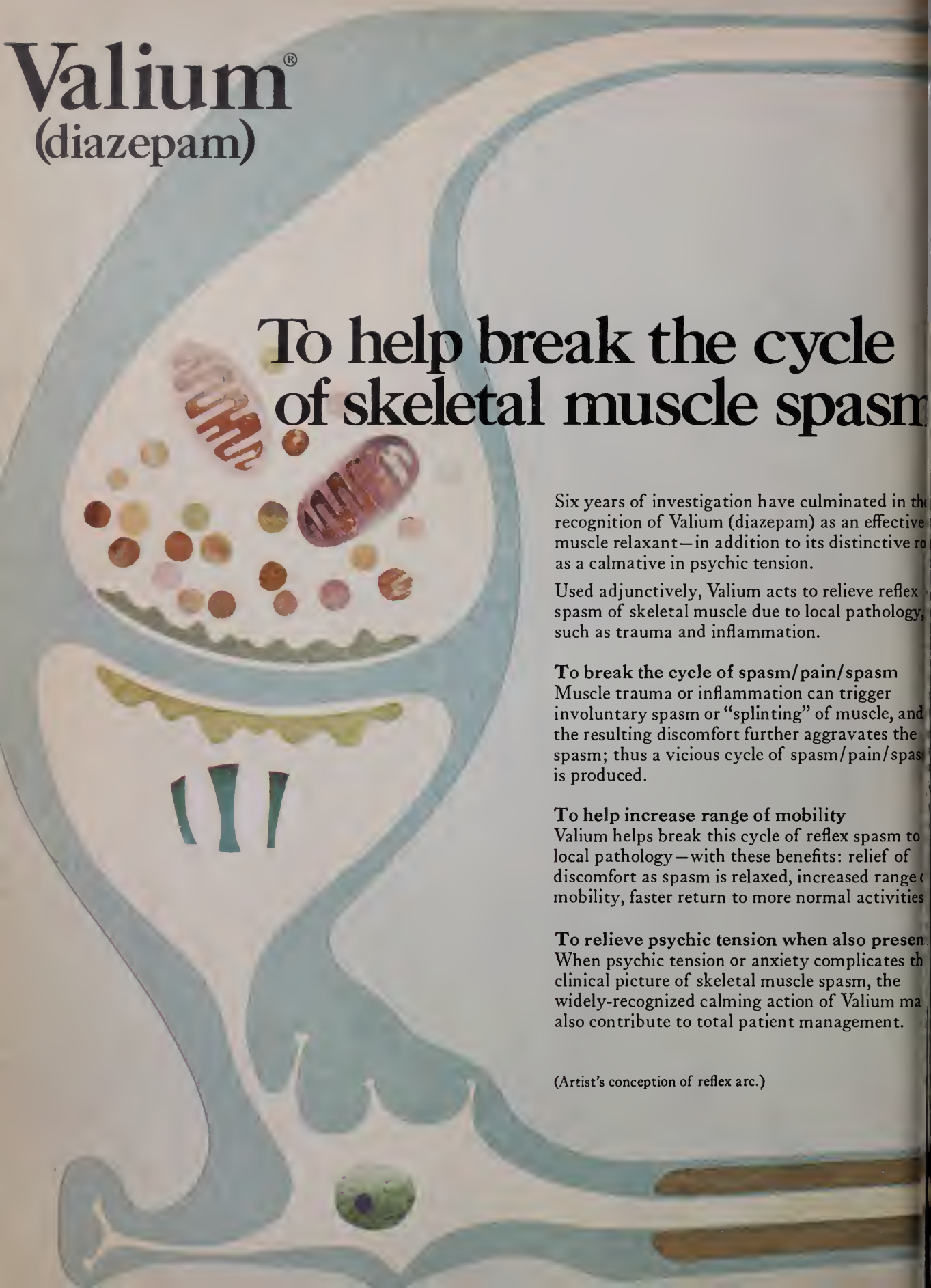
Each tablet contains:
Codeine Phosphate gr. 1/2 (Warning—May be habit forming), Phenacetin gr. 2 1/2, Aspirin gr. 3 1/2, Caffeine gr. 1/2.

...keeps the promise of pain relief

...W. & Co.' narcotic products are ...lass "B", and as such are available on oral ...rescription, where State law permits.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.

Valium®
(diazepam)



To help break the cycle of skeletal muscle spasm

Six years of investigation have culminated in the recognition of Valium (diazepam) as an effective muscle relaxant—in addition to its distinctive ro as a calmative in psychic tension.

Used adjunctively, Valium acts to relieve reflex spasm of skeletal muscle due to local pathology, such as trauma and inflammation.

To break the cycle of spasm/pain/spasm
Muscle trauma or inflammation can trigger involuntary spasm or "splinting" of muscle, and the resulting discomfort further aggravates the spasm; thus a vicious cycle of spasm/pain/spas is produced.

To help increase range of mobility
Valium helps break this cycle of reflex spasm to local pathology—with these benefits: relief of discomfort as spasm is relaxed, increased range mobility, faster return to more normal activities

To relieve psychic tension when also presen
When psychic tension or anxiety complicates th clinical picture of skeletal muscle spasm, the widely-recognized calming action of Valium ma also contribute to total patient management.

(Artist's conception of reflex arc.)



re prescribing, please consult complete
luct information, a summary of which follows:

cations: Tension and anxiety states; somatic
plaints which are concomitants of emotional
ors; psychoneurotic states manifested by
ion, anxiety, apprehension, fatigue, depressive
ptoms or agitation; acute agitation, tremor,
ium tremens and hallucinosis due to acute
hol withdrawal; adjunctively in skeletal
cle spasm due to reflex spasm to local
ology, spasticity caused by upper motor
on disorders, athetosis, stiff-man syndrome,
vulsive disorders (not for sole therapy).

traindicated: Known hypersensitivity to the
g. Children under 6 months of age. Acute
ow angle glaucoma.

rnings: Not of value in psychotic patients.
tion against hazardous occupations requiring
plete mental alertness. When used adjunctively
onvulsive disorders, possibility of increase in
uency and/or severity of grand mal seizures
require increased dosage of standard anti-
vulsant medication; abrupt withdrawal may
ssociated with temporary increase in frequency
/or severity of seizures. Advise against
ltaneous ingestion of alcohol and other CNS
ressants. Withdrawal symptoms have
rred following abrupt discontinuance. Keep
iction-prone individuals under careful
eillance because of their predisposition to
ituation and dependence. In pregnancy,
ation or women of childbearing age, weigh
ntial benefit against possible hazard.

cautions: If combined with other psycho-tropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Valium® (diazepam)

2-mg, 5-mg, or 10-mg tablets, t.i.d. or q.i.d. and when skeletal muscle spasm and psychic tension interfere with sleep: add 1 tablet, h.s., to t.i.d. dosage

Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Public Enema No.





Claim the rewards of sparing your patients the tubes and tribulations of unpleasant enemas.

Compared to enemas, Dulcolax suppositories are a gentler and simpler way to empty the bowel. Gone are the tubing, the "accidents", and the bruised egos. Just one suppository, inserted against the bowel wall, usually brings about an evacuation within 15 minutes to an hour.

In the hospital, order Dulcolax for constipation or bowel cleansing. Your patients will often prefer embarrassing enemas. And you can be sure nur will appreciate the saving in time and effort.

Dulcolax tablets taken at night usually result in bowel movement the following morning. A com tion of tablets at night and a suppository the ne morning generally cleans the bowel thoroughly preparation for surgery or special procedures. H in mind, however, that the drug is contraindicat the acute surgical abdomen.

Dulcolax®...it's predictable

bisacodyl



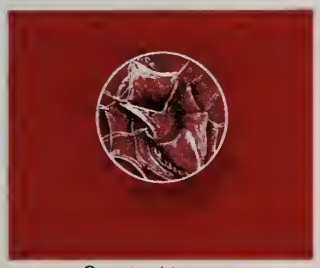
IN PATIENT BENEFITS

what does CHYMORAL's faster action mean?

It can mean:

- Edema and inflammation subside twice as fast—healing time cut in half.
- The patient is restored to normal activities twice as fast.
- Lesions heal in less time—and the physical appearance of the patient improves twice as fast.
- Hospital stay...convalescent period...medication costs may be cut in half.

The benefits of CHYMORAL cover many conditions and the results[1] are worthy of mention.



Surgical trauma

4123 cases **91%** had good/excellent results

3470 cases **89%** had good/excellent results



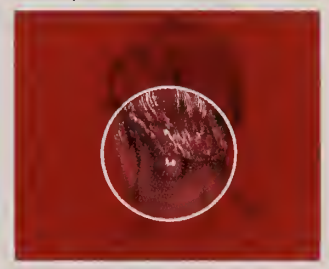
Episiotomy and pelvic inflammation



Inflammation of respiratory tract

2389 cases **80%** had good/excellent results

1055 cases **75%** had good/excellent results



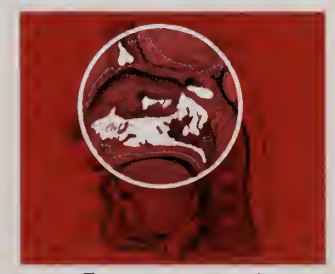
Inflammatory dermatoses



Traumatic lesions

6929 cases **93%** had good/excellent results

2645 cases **83%** had good/excellent results



Eye, ear, nose and throat inflammations

***Rx.* CHYMORAL®—Enzyme tablets**

ARMOUR PHARMACEUTICAL COMPANY, Chicago, Illinois 60690, U.S.A.

[1] Based on clinical reports compiled by the Medical Division of Armour Pharmaceutical Company

Whenever anxiety induces or intensifies clinical symptoms

Librium®

(chlordiazepoxide HCl)

Quickly relieves anxiety~Helps improve response in psychophysiologic disorders~Seldom impairs mental acuity or physical coordination, on proper dosage~Has wide margin of safety

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limit to smallest effective dosage (initially 10 mg or less per day) to preclude ataxia or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in mo instances by proper dosage adjustment, bu also occasionally observed at the lower do ranges. In a few instances syncope has bee reported. Also encountered are isolated in stances of skin eruptions, edema, minor n strual irregularities, nausea and constipati extrapyramidal symptoms, increased and creased libido—all infrequent and general controlled with dosage reduction; change EEG patterns (low-voltage fast activity) r appear during and after treatment; blood crasias (including agranulocytosis), jaund and hepatic dysfunction have been report occasionally, making periodic blood coun and liver function tests advisable during tracted therapy.

Usual Daily Dosage: Individualize for t mum beneficial effects. *Oral*—Adults: Mi and moderate anxiety and tension, 5 or 1 t.i.d. or q.i.d.; severe states, 20 or 25 mg or q.i.d. Geriatric patients: 5 mg b.i.d. to q.i.d. (See Precautions.)

Supplied: Librium® (chlordiazepoxide l Capsules, 5 mg, 10 mg and 25 mg—bottl 50. Libritabs™ (chlordiazepoxide) Tab 5 mg, 10 mg and 25 mg—bottles of 100. respect to clinical activity, capsules and t are indistinguishable.



Roche®
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Also available: ***Libritabs***™ *(chlordiazepoxide) 5-mg, 10-mg, 25-mg ta*

PY 1

SHELVES



BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

NUTRITIONAL SURVEY OF FIVE RURAL PUERTO RICAN COMMUNITIES 42
Nelson A. Fernández, MD, José C. Burgos, MD, Conrado F. Asenjo, PhD and I. Rosa Rosa, BS

LUCHA ANTITUBERCULOSA 53
Cambios en Normas y Objetivos
J. Rodríguez Pastor, MD

LA MONILIA PSILOSIS DE ASHFORD Y LA CANDIDA ALBICANS DE HOY 61
Margarita Silva Hutner, PhD

AUDIOMETRIC PATTERNS IN EAR DISEASE 65
Alexis O. Fernández, MD, MSc

CASE REPORT
CALCIFICATIONS IN CARCINOMA OF THE PANCREAS 71
Bernardo J. Marques, MD and Laszlo Ehrlich, MD, FACP, FACR

CARTA 75

ACTUALIDADES MEDICAS 76

EDITORIAL 78
La Prevención de los Envenenamientos Accidentales

NOTICIAS 80

REVISTA DE LIBROS 81

THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON
6 MAY 1969

VOL. 61 FEBRERO, 1969 NUM. 2



Hot under the collar...

high under the cuff.

Sometimes
he forgets he has hypertension, gets hot under the collar. . . high under the cuff.

For such
patients, consider **Regroton®**

chlorthalidone	50 mg.
reserpine U.S.P.	0.25 mg.

To lower blood pressure
and allay anxiety in hypertension.

For brief summary of prescribing information, see next page.

RE-6392

Regroton®

Geigy

chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

the once-a-day tablet for anxious hypertensives

Regroton is a combination of two basic antihypertensives designed to lower blood pressure and allay anxiety in hypertension. With Regroton he can keep his shirt on and you can keep his blood pressure down.

Before prescribing, please review carefully the indications, contraindications, warning, precautions, adverse reactions and dosage information below.

Regroton®
Each tablet contains:
chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

Indications: Hypertension.
Contraindications: History of mental depression, hypersensitivity, and most cases of severe renal or hepatic diseases.
Warning: With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has frequently been required and deaths have occurred. Discontinue coated potassium-containing formulations immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur. Discontinue one week before electroshock therapy, and if depression or peptic ulcer occurs.
Use in pregnancy: Because chlorthalidone may cross the placental barrier and appear in cord blood and thiazides may appear in breast milk, this drug should be used with care in pregnant patients and nursing mothers. When used in women of childbearing age, the potential benefits of the drug should be weighed against the possible hazards to the fetus. Use of chlorthalidone may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. Increased respiratory secretions, nasal congestion, cyanosis and anorexia may occur in infants born to reserpine-treated mothers.
Precautions: Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs, or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. To avoid hypotension during surgery, discontinue therapy with this agent two weeks prior to elective surgical procedures. In emergency surgery, use, if needed, anticholinergic or adrenergic drugs or other supportive measures as indicated. Because of the possibility of progression of renal damage, periodic kidney function tests are indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated. Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria.
Take particular care in cirrhosis or severe ischemic heart disease and in patients receiving corticosteroids, ACTH, or digitalis. Severe salt restriction is not recommended. Use cautiously in patients with ulcerative colitis or gallstones (biliary colic may be precipitated). Bronchial asthma may occur in susceptible patients.
Adverse Reactions: The drug is generally well tolerated. The most frequent side effects are nausea, gastric irritation, vomiting, diarrhea, constipation, muscle cramps, headache, dizziness and acute gout. Other potential side effects include angina pectoris, anxiety, depression, bradycardia and ectopic cardiac rhythms (especially when used with digitalis), drowsiness, dull sensorium, hyperglycemia and glycosuria, hyperuricemia, lassitude, restlessness, transient myopia, impotence or dysuria, orthostatic hypotension which may be potentiated when chlorthalidone is combined with alcohol, barbiturates or narcotics, leukopenia, aplastic anemia, skin rashes, thrombocytopenia, agranulocytosis, nasal stuffiness, increased gastric secretions, nightmare, purpura, urticaria, ecchymosis, weakness, uveitis, optic atrophy and glaucoma, and pruritus. Eruptions and/or flushing of the skin, a reversible paralysis agitans-like syndrome, blurred vision, conjunctival injection, increased susceptibility to colds, dyspnea, weight gain, decreased libido, dryness of the mouth, deafness, anorexia, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Jaundice, xanthopsia, paresthesia, photosensitization and necrotizing angiitis are possible.
Average Dosage: One tablet daily with breakfast.
Availability: Pink, single-scored tablets in bottles of 100 and 1000.
(B)46-600-C
For details, please see complete prescribing information.

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

RE-6392

REGROTON JOB NO. JS -RE-9700 (L) - 3rd Page
3 Pages: 2 Pages B&W Bleed; 1 Page B&W No Bleed-RE-6392

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

Organo Oficial

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:
Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:
El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:
Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.



There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

SSS

Member of the National Association of Blue Shield Plans

Vibramycin
doxycycline
New from Pfizer Research



after the first day—

The only one-dose-a-day oral broad-spectrum antibiotic

Product Information

Actions: Vibramycin (doxycycline), a new broad-spectrum antibiotic, differs from other tetracyclines in its greater absorption from the gastrointestinal tract and its capability for once-a-day maintenance dosage. Also, in comparison with certain other tetracyclines, the absorption of Vibramycin is not notably diminished by the ingestion of food or milk.

After discontinuance of therapy, effective antibacterial levels of Vibramycin are usually present for 24-36 hours.

Animal Pharmacology: As with other tetracyclines, at doses greater than those recommended for human usage, Vibramycin (doxycycline) produces discoloration of animal thyroid glands. Careful monitoring of animals and humans has disclosed no abnormalities of thyroid function studies. Also, as with other tetracyclines, at relatively high oral doses, evidence of hepatotoxicity has been noted in dogs and signs of gastrointestinal intolerance have been seen in both dogs and monkeys.

Indications: Vibramycin has been found to be clinically effective in the treatment of a variety of bacterial infections of the respiratory and genitourinary tracts and soft-tissue infections. Since Vibramycin is a member of the tetracycline series, it may be expected to be useful in the treatment of gastrointestinal, ophthalmic and other miscellaneous infections when caused by susceptible organisms.

Contraindications: Vibramycin is contraindicated in individuals who have shown hypersensitivity to it.

Warnings: In patients with impaired renal function, reduce usual oral dosage and consider serum level determinations to avoid liver damage from excessive systemic accumulation.

Vibramycin, like other tetracyclines, may form a stable calcium complex in any bone-forming tissue, although *in vitro* it binds calcium less strongly than other tetracyclines. The use of Vibramycin during tooth development (last trimester of pregnancy, neonatal period, and early childhood) may cause discoloration of the teeth (yellow-gray-brownish). This effect may occur mostly during long-term use, but also may occur with short-treatment courses.

Increased intracranial pressure with bulging fontanelles has been observed in infants receiving tetracyclines, which effect disappears rapidly on cessation of therapy.

In certain hypersensitive individuals treated with Vibramycin, exposure to direct sunlight may precipitate a photodynamic reaction. In individuals with a history of photoallergic reactions to tetracyclines, exposure to direct sunlight should be avoided and treatment should be discontinued at first evidence of skin discomfort.

Precautions: As with any antibiotic, overgrowth of nonsusceptible organisms may occasionally occur. Constant observation of the patient is essential. If such superinfections are encountered, Vibramycin should be discontinued and replaced by appropriate therapy.

When treating gonorrhea in which lesions of primary or secondary syphilis are suspected, proper diagnostic procedures, including darkfield examinations, should be utilized. In all cases in which concomitant syphilis is suspected, monthly serological tests should be made for at least four months.

Adverse Reactions: Nausea, vomiting, diarrhea, vaginitis, and dermatitis, as well as reactions of an allergic nature, may occur but are rare. Glossitis, stomatitis, proctitis, onycholysis and discoloration of the nails may rarely occur during tetracycline therapy, as with other antibiotics. If adverse reactions, individual idiosyncrosy, or allergy occur, discontinue medication.

As with other tetracyclines, elevation of SGOT or SGPT values, anemia, neutropenia, eosinophilia or elevated BUN have been reported, the significance of which is not known at this time.

Dosage: The usual dose of Vibramycin is 200 mg. on the first day of treatment (administered 100 mg. every 12 hours) followed by a maintenance dose of 100 mg./day. The maintenance dose may be administered as a single dose, or as 50 mg. every 12 hours. In the management of more severe infections (particularly chronic infections of the urinary tract), 100 mg. every 12 hours is recommended.

The recommended dosage schedule for children weighing 100 pounds or less is 2 mg./lb. of body weight divided into two doses on the first day of treatment, followed by 1 mg./lb. of body weight given as a single daily dose or divided into two doses, on subsequent days. For more severe infections, up to 2 mg./lb. of body weight may be used. For children over 100 lbs., the usual adult dose should be used.

Therapy should be continued beyond the time that symptoms and fever have subsided. It should be noted, however, that effective antibacterial levels are usually present for 24 to 36 hours following the discontinuation of Vibramycin.

When used in streptococcal infections, therapy should be continued for 10 days to prevent the development of rheumatic fever or glomerulonephritis.

Aluminum hydroxide gel given with tetracycline antibiotics has been shown to decrease their absorption.

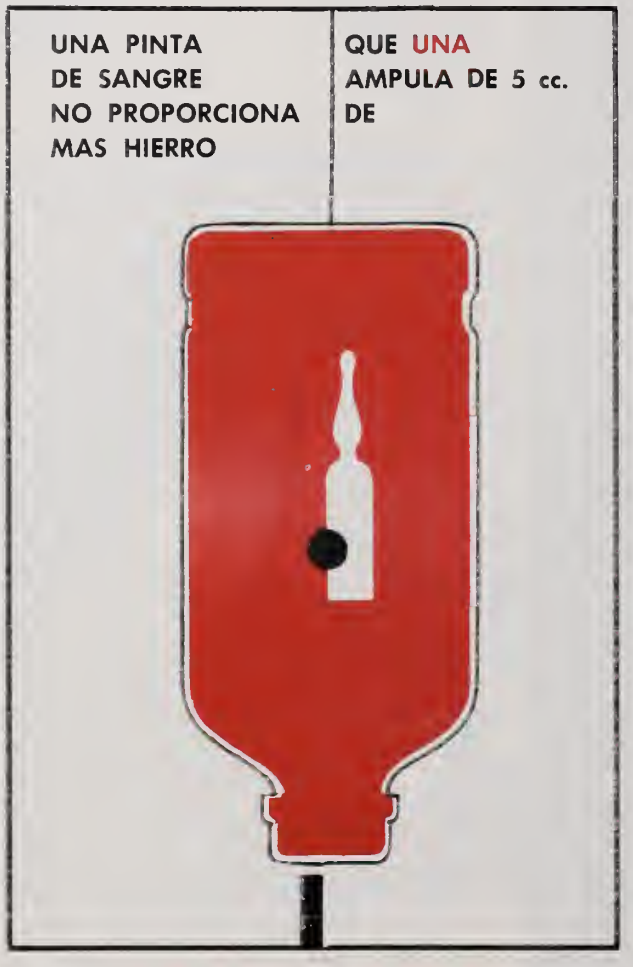
Supply: Vibramycin Hyclate (doxycyline hyclate) is available as capsules containing doxycycline hyclate equivalent to 50 mg. of doxycycline, bottles of 50.

Vibramycin Monohydrate (doxycycline monohydrate) is available as a dry powder for oral suspension containing when reconstituted doxycycline monohydrate equivalent to 25 mg. of doxycycline per 5 cc (each teaspoonful), with a pleasant-tasting raspberry flavor, 2 oz. bottles.

More detailed professional information available on request.

Pfizer **LABORATORIES DIVISION**
New York, N.Y. 10017

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistemicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.

When it's more than a bad cold



your patient can feel better while she's getting better

Achrocidin®

Tetracycline HCl—Antihistamine—Analgesic Compound

Each tablet contains: ACHROMYCIN® Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Caffeine 30 mg.; Salicylamide 150 mg.; Chlorothen citrate 25 mg.

In bacterial/allergic u.r.i., ACHROCIDIN brings the treatment together in a single prescription —prompt relief of headache and congestion together with effective control of the tetracycline-sensitive organisms frequently responsible for complications leading to prolonged disability in the susceptible patient.

For children and elderly patients you may prefer caffeine-free ACHROCIDIN Syrup. Each 5 cc contains: ACHROMYCIN (Tetracycline) equivalent to Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Salicylamide 150 mg.; Ascorbic Acid (C) 25 mg.; Pyrilamine Maleate 15 mg.

Average adult dosage: 2 tablets four times daily, given at least one hour before, or two hours after meals.
Contraindications: History of hypersensitivity to any component.
Warning: If renal impairment exists, even usual doses may lead to liver toxicity. Under such conditions, lower than usual doses are indicated and, if therapy is prolonged, serum level determinations may be advisable. Hypersensitive individuals may develop a photodynamic reaction to natural or artificial sunlight during use. Individuals with a history of photosensitivity reactions should avoid direct exposure while under treatment, which should be discontinued at first evidence of skin discomfort.
Precautions: Some individuals may experience drowsiness, anorexia, and slight gastric distress. If excessive drowsiness occurs, it may be necessary to increase the interval between doses. Persons on full dosage should not operate any vehicle. Use may result in overgrowth of nonsusceptible organisms. If infections appear during therapy, appropriate measures should be taken. Infections caused by beta-hemolytic streptococci should be treated for at least 10 full days to help prevent rheumatic fever or acute glomerulonephritis. Use of tetracycline during tooth development may cause discoloration of teeth.
Adverse Reactions: Gastrointestinal—anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. Skin—maculopapular and erythematous rashes (a case of exfoliative dermatitis has been reported); photosensitivity; onycholysis and discoloration of nails (rare). Kidney—rise in BUN, apparently dose related. Hypersensitivity reactions—urticaria, angioneurotic edema, anaphylaxis. In young infants, bulging fontanels following full therapeutic dosage has been reported. This has disappeared rapidly when drug was discontinued. Teeth—dental staining (yellow-brown) in children of mothers given tetracycline during the latter half of pregnancy and in children given the drug during the neonatal period, infancy, and early childhood. Enamel hypoplasia has been seen in a few children. Blood—anemia, thrombocytopenic purpura, neutropenia, eosinophilia. Liver—cholestasis (rare), usually at high dosage. If adverse reaction or idiosyncrasy occurs, discontinue medication and institute appropriate therapy.

Lederle

327-8



Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

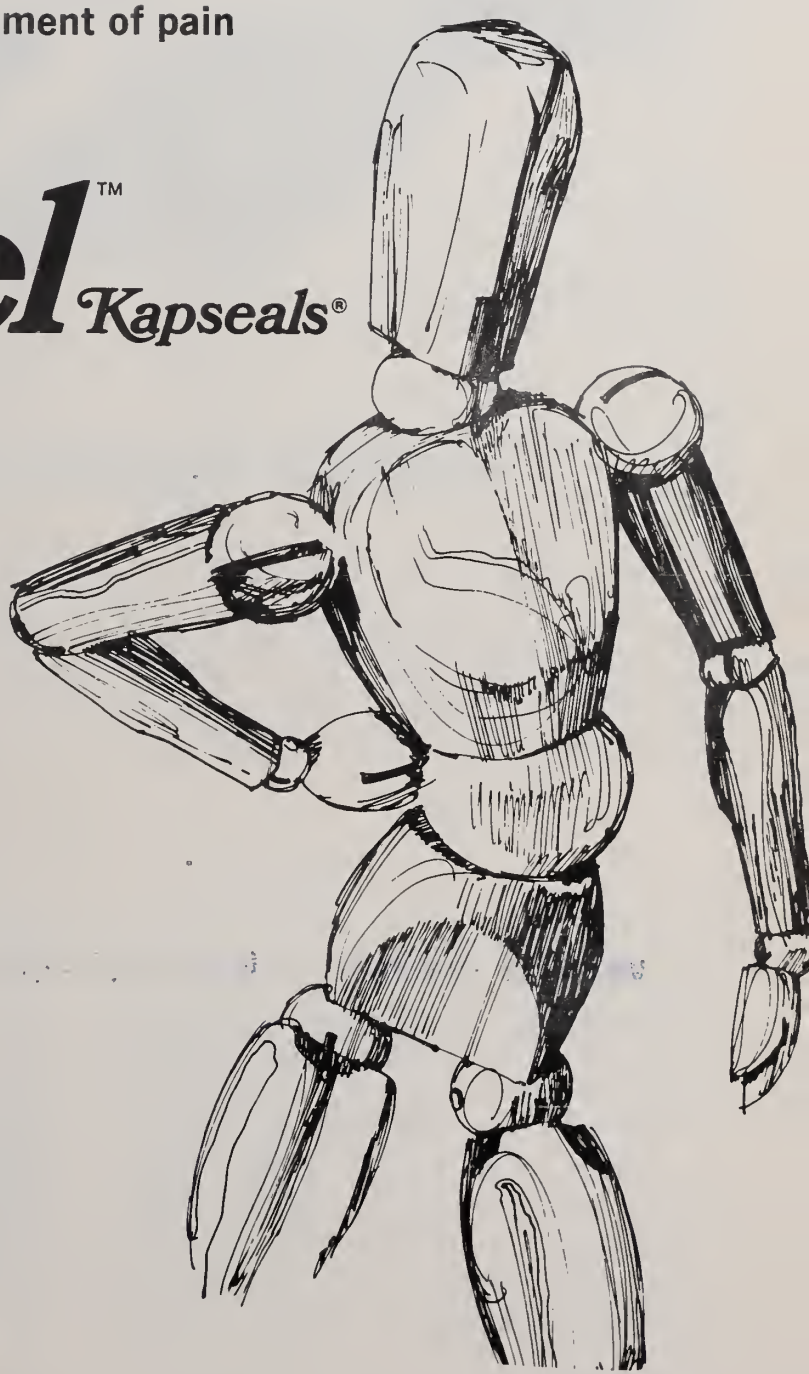
Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®

EW . . . for effective management of pain

Ponstel™ Kapseals®
(mefenamic acid)

nonnarcotic oral analgesic



PARKE-DAVIS



NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extrapiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.

NUTRITION SURVEY OF FIVE RURAL PUERTO RICAN COMMUNITIES

Nelson A. Fernández, MD
José C. Burgos, MD
Conrado F. Asenjo, PhD
I. Rosa Rosa, BS

This report includes the combined results of five nutrition surveys carried out in different isolated rural communities of Puerto Rico from 1963 to 1965. The surveys included the collection of dietary, clinical, and biochemical data. Stools for ova and parasites were also examined. Individual reports of each of these studies have been published in various scientific journals (1-5). However, it was the impression of our group that a combined publication would be of high practical value.

The rural areas included were: Mavilla, Vega Alta; Naranjo, Moca; Duey Alto, San Germán; Montones 4, Las Piedras; and Masas 2, Gurabo. All of them were included in the program of the government Commission for the Improvement of Isolated Communities and belonged to the lowest socio-economic level. These areas were extremely poverty stricken and somewhat isolated due to the lack of paved roads and electricity. There was no potable water, sanitary conditions were very poor, and school facilities were inadequate.

The varied location of the communities surveyed made them quite representative of our rural population. This report, in addition to the studies published by Plough, *et al* (6) and Roberts (7), gives us a complete picture of the present nutritional problems of our typical rural dwellers.

Methods

In these communities 2,137 subjects were examined clinically representing 94 percent of the total population. Biochemical tests were done in 2,110 persons or 98.7 percent of the examinees. The dietary study was carried out in 86 representative families including 479 individuals. Families were selected according to size, annual income, and geographic location within each community. The exact food intake of each individual was weighed for one 24 hour period by the dietary team. Food consumption was obtained by the recipe method. Nutrient intake was calculated using the Department of Agriculture Handbook No. 8 (8), and supplemented by data from a number of local nutrient analysis figures (9).

The clinical data was recorded in punch cards similar to the I.C.N.N.D. detailed examination forms (10). Heights were measured without shoes. Children under 6 years were measured supine on the examining table. Subjects were weighed in their underwear and without shoes. Blood pressure levels and pulse rates were taken with the person in sitting position.

Biochemical tests included hemoglobin, hematocrit and plasma values of total protein, albumin, carotene, vitamin A, and vitamin C. Urinary excretion rates of thiamine, riboflavin, and N-methylnicotinamide per gram of creatinine were done in casual urine specimens. Stools for ova and parasites were examined quantitatively. Laboratory specimens were analyzed using the techniques referred to in our previous publications (1-5).

Results

1. Dietary Findings:

The findings of the dietary surveys are summarized in tables I-III. The foods consumed the most were starchy vegetables and rice. In the starchy vegetables or "viandas" we included some fruits like green bananas, plantain and breadfruit in addition to tubers. Breakfast usually consisted of coffee, alone or with milk, and bread. Codfish and starchy vegetables were the usual lunch, and rice and beans were the regular evening meal.

The consumption of milk was low. The average intake of children under two years was 1.6 cups per day. Milk obtained through breast feeding was not included. Fresh milk accounted for 54 percent of the milk consumed. In the entire group of 464 subjects included in the dietary surveys, the average daily per capita intake of milk was 205 grams or 0.8 of a cup. A few persons consumed small amounts of goat's milk and cheese.

Dried codfish accounted for 35 percent of the total

From the Department of Biochemistry and Nutrition, School of Medicine, University of Puerto Rico; and the Division of Nutrition, Department of Health, San Juan, Puerto Rico.

This project was supported by Grant AM-06032 from the National Institutes of Health.

meat consumption. Other meat products consumed regularly were sausages, ham, and boiled pigs feet. The intake of beef was low. Chicken, as well as seafoods other than codfish, were practically absent from the diet. The daily per capita consumption of eggs was low, being about 1/6 of an egg.

Of the legumes, beans were eaten the most. A significant preference for red kidney beans was observed. Pigeon and chick peas were consumed in lesser amounts, particularly the latter.

A great variety of fruits including oranges, mangos, ripe bananas, grapefruits and others were eaten, but in small amounts and in a very irregular manner. They were consumed primarily by children and mostly between meals. Yellow and green vegetables were eaten in very small quantities. Tomato was consumed mostly in the form of tomato sauce as a seasoning for cooking.

Milled enriched rice was the cereal product of preference. Wheat was mainly consumed in the form

TABLE I: FOOD CONSUMPTION *

Age Group (yr.)	<2	2-5	6-9	10-14		15-19		20-39		40-59		⩾60		All Ages
Sex	*MF*	*MF*	*MF*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*MF*
Number	31	79	73	38	37	23	28	37	31	40	30	11	6	464
Milk Total	387	205	137	119	243	216	112	223	170	266	172	402	240	205
Fresh	144	109	63	76	93	131	85	144	73	171	117	293	107	110
Evaporated	92	9	8	3	0	7	12	20	11	14	24	39	0	16
Dry whole	91	20	10	5	15	44	3	11	26	31	6	0	55	23
Dry skim	47	66	17	34	134	33	3	48	58	48	24	70	79	49
Cheese	0.2	4	3	2	5	1	5	4	2	2	1	0	0	3
Meat & Eggs (Total)	8	34	45	51	53	64	39	93	54	100	61	106	54	54
Meat & meat products	3	17	25	20	27	33	23	53	32	64	31	65	38	30
Codfish	1	10	13	23	16	22	12	26	18	22	19	28	8	16
Eggs	4	7	7	6	10	9	4	14	4	13	10	13	7	8
Legumes (Total)	4	16	28	37	41	53	33	53	53	86	45	71	22	38
Beans	4	14	21	32	38	51	32	46	36	54	36	62	22	31
Pigeon peas	0	2	5	4	2	2	1	5	16	29	9	9	0	7
Vegetables and Fruits (Total)	48	222	347	404	407	298	296	391	248	342	231	314	184	296
Starchy vegetables	30	126	232	249	295	246	186	276	182	258	190	275	131	205
Fruits	9	62	74	78	82	20	47	54	27	26	14	9	17	49
Yellow and green vegetables	3	6	1	3	2	8	3	12	6	12	2	0	0	5
Tomatoes	5	19	22	62	21	22	22	33	20	36	16	26	19	25
Cereal Products (Total)	87	92	136	174	174	215	131	244	168	301	148	178	116	161
Rice	20	72	113	151	146	177	105	218	153	224	124	154	69	130
Wheat	5	19	21	25	25	37	23	25	14	75	23	24	47	26
Visible Fat (Total)	3	16	23	24	28	38	25	48	31	50	34	43	20	28
Animal Fat	3	15	22	23	27	33	25	44	28	47	30	39	14	26
Sugar & Products	26	33	37	51	45	67	33	66	42	75	57	84	70	47
Coffee	1	11	10	17	12	19	10	23	15	32	19	28	24	15

* - *Grams per person per day*

of soda crackers and bread. Other cereals eaten in very small amounts, particularly by children under 2 years old, were corn and oatmeal. The visible fat consumed was 93 percent of animal origin. Canned hog lard was the usual choice for cooking and frying. Refined sugar was the principal sugar product consumed.

Coffee is reported in grams of coffee flour utilized in the preparation of the liquid extract. It was common to find ground coffee mixed with varying amounts of chick peas.

Daily ingestion of the various nutrients is described in tables II and III. Mean caloric intake was low, in general. Infants, children, adolescents, and adult females were deprived of an adequate intake. Adult men showed satisfactory intakes.

The consumption of protein was quite satisfactory with an average daily intake for all ages of 1.3 grams per kilo of body weight, but adolescent and adult women received insufficient amounts. Animal protein amounted to 50 percent of total protein.

Fat intake was low in general. In the whole group surveyed only 25 percent of the calories came from fat.

Calcium intake was also low especially among women. The majority of the values fell below 500 mg daily. Iron consumption was particularly low in infants, children, adolescent girls, and women. An

TABLE II: AVERAGE DAILY NUTRIENT INTAKE

Age Group	< 2	2 - 5	6 - 9	10 - 14		15 - 19		20 - 39		40 - 59		⩾ 60		All Ages
Sex	*MF*	*MF*	*MF*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*MF*
Fat, g	17	30	38	39	43	57	40	72	46	77	50	72	32	45
Calcium, mg.	592	400	348	332	390	479	219	550	374	592	286	642	429	422
Iron, mg	2	6	9	11	12	14	9	16	10	17	10	12	8	10
Vitamin A, I.U.	822	1554	1750	1824	1733	1777	1293	2487	1315	1963	1177	2039	1288	1645
Vitamin C, mg.	15	61	89	102	111	82	77	109	62	99	75	94	35	80
Thiamine, mg.	0.4	0.8	1.1	1.4	1.4	1.6	1.1	2.0	1.1	2.2	1.3	1.8	0.9	1.3
Riboflavin, mg.	0.9	0.7	0.7	0.8	0.8	0.9	0.6	1.1	0.8	1.2	0.8	1.6	0.9	0.9
Niacin equiv., mg.	6.9	14.0	18.8	23.9	23.4	26.9	17.4	24.2	21.9	35.8	22.7	33.7	20.1	21.8

TABLE III: AVERAGE DAILY INTAKE OF CALORIES AND PROTEINS PER KILOGRAM OF BODY WEIGHT

Age Group	<2	2-5	6-9	10 - 14		15 - 19		20 - 39		40 - 59		⩾ 60		All Ages
Sex	*MF*	*MF*	*MF*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*MF*
Mean weight, kg	7.5	14.0	20.8	29.2	35.0	50.7	50.1	57.4	51.6	60.3	59.9	58.2	53.9	36.1
Calories	75	78	72	60	52	43	28	44	30	39	28	40	25	45
Protein, g	2.9	2.4	2.0	1.8	1.5	1.2	0.8	1.3	0.9	1.3	0.8	1.3	0.9	1.4
Animal protein, g	2.3	1.2	1.0	0.9	0.7	0.5	0.4	0.7	0.5	0.6	0.4	0.8	0.6	0.7

average ingestion of 10 mg was observed in the whole dietary sample.

Vitamin A intake was low in all age groups. Women showed much lower intakes than men. Vitamin C consumption was good in general. Children under 2 years and older women showed poor intakes.

Thiamine was consumed in satisfactory amounts, being consistently greater than 0.5 mg per 1000 calories. Riboflavin ingestion was generally on the lower side, except in infants and old men. Niacin intake was adequate in all age groups.

N. R. C. recommended dietary allowances as revised in 1963 were used in the preceding evaluation of the diet (11).

2. Clinical Findings:

The incidence of clinical signs are given in table IV. In general, there was a low occurrence of signs associated with specific nutritional deficiencies. Dental caries were common and increasingly frequent with age until about 40 years old. Above that age a slight decrease was observed due to the increasing number of missing teeth.

With the purpose of making a more objective evaluation, the clinical signs observed were grouped in the following manner:

1. Hypovitaminosis A: follicular hyperkeratosis, conjunctival injection, blepharitis, xerosis of skin and conjunctiva, thickened bulbar conjunctiva, and Bitot spots.

2. Thiamine deficiency: Loss of knee and ankle jerks, calf tenderness, loss of vibratory sense, motor weakness, and plantar hyperesthesia.

3. Riboflavin deficiency: cutaneous seborrhea, angular lesions and scars, magenta tongue, cheilosis, and circumcorneal injection.

4. Niacin deficiency: glossitis, tongue papillary hypertrophy and fissures, pellagrous dermatitis, and crackled skin.

5. Hypovitaminosis C: diffuse gingivitis, petechie, purpura, echymoses, and perifolliculosis.

6. Hypovitaminosis D: genu valgus and varum, epiphyseal enlargement, and costochondrial beading.

7. Protein deficiency: bilateral edema, dry-brittle hair, and hair depigmentation.

Among the signs associated with vitamin A deficiency, skin xerosis and follicular hyperkeratosis were the most common. The former prevailed mostly in adults, while hyperkeratosis was more prevalent among children.

Gingivitis, gum papillary atrophy and bleeding were commonly associated with poor oral hygiene and pyorr-

TABLE IV: CLINICAL SIGNS PERCENT PREVALENCE

Age Group	< 2	2 - 5	6 - 9	10 - 14	15 - 19	20 - 39	40 - 59	⩾ 60	All Ages
Number	105	296	316	388	257	338	303	134	2137
Dental Caries	0	24.7	45.6	45.9	44.4	58.9	56.1	52.2	44.4
Hypovitaminosis A	6.7	13.2	19.6	10.8	7.8	11.8	15.8	24.6	13.6
Thiamine deficiency	1.9	5.4	0.9	0	0	0.3	1.0	9.7	1.8
Riboflavin deficiency	8.6	4.7	3.2	1.5	1.9	1.8	2.6	3.7	2.9
Niacin deficiency	1.0	1.7	2.2	4.4	3.1	3.3	5.0	13.4	3.8
Hypovitaminosis C	0	0	0	1.0	0.4	1.8	2.3	0	0.8
Hypovitaminosis D	2.8	0.3	0.3	0	0	0	0	0.7	0.3
Protein deficiency	5.7	3.0	0.9	0.3	0.4	1.2	1.0	1.5	1.4
Fluorosis	0	1.0	1.3	1.3	0.8	0	0	0	0.7
Enlarged thyroid	0	-	-	-	0.4	0.6	0.3	0	0.2

Note: For signs included see text.

hea, there being very little evidence of the diffuse gingivitis of vitamin C deficiency.

Angular stomatitis and cutaneous seborrhea were the most frequent signs of arriboflavinosis. Thiamine deficiency was particularly manifested by the bilateral absence of diminution of the knee and ankle reflexes. Papillary hypertrophy of the tongue, followed by glossitis and crackled skin, were the most common signs of nicotinic acid deficiency.

Edema was observed mainly in adults. Only 3 pre-school children from Las Piedras showed bilateral edema of lower extremities which could be related to hypoproteinemia. Dry-brittle hair was found in 6 children under 6 years old.

Possible signs of rickets were reported in 6 subjects including 2 small children with costochondrial beading. Fluorosis was observed mainly in school children. The enlargement of the thyroid was very rare.

The most revealing clinical findings were the data for body height and weight (table V). The mean heights and weights of children and adolescents were below the standards for United States (12) and Puerto Rico (13). Moderate undernutrition, 10 to 20 percent underweight, prevailed from early childhood through adolescence. Body length and weight of infants were close to the standard, but both fell progressively below the standard until about 15 years of age, the difference decreasing partially in late adolescence. The percent standard weights were calculated in terms of weight for age up to 18 years, and weight for height above that age. The weights for attained heights were reasonably good.

In general, the average weights of adult women were very satisfactory. Men, however, showed mean percent standard weights varying from 89 to 92.5 percent which revealed a poor caloric nutriture.

Table V also shows that the population of these areas was very young, with 66 percent of the inhabitants under 20 years of age. There was also a tendency among young adults to grow taller than older people. This was more obvious among women.

The skinfold was thicker in the arm than in the back until late adolescence. Above that age the opposite occurred. Females had thicker skinfolds than males. In general, a direct relation was observed between the mean percent standard weights and both the arm and back skinfold thicknesses. An increase or decrease in the former was usually accompanied by an increase or decrease in the arm and/or back skinfold thickness.

Blood pressure increased with age as expected. Arterial hypertension began to appear usually after 40 years of age and was more prevalent among wo-

TABLE V: CLINICAL FINDINGS

Age Group (yrs.)	< 2	2 - 5	6 - 9	10 - 14		15 - 19		20 - 39		40 - 59		⩾60		16 - 44	
Sex	*MF*	*MF*	*MF*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*PF*	*LF*
Number of Persons	105	296	315	210	178	128	116	138	139	165	133	79	55	40	39
Mean Age (yrs.)	9.5 mo.	3.6	7.5	11.8	12.0	16.7	16.8	28	31	49	49	69	69	26	28
Mean Height (in.)	27.4	37.8	45.6	53.7	55.2	63.1	60.1	65.1	63.5	64.4	59.8	64.0	58.4	60.0	60.2
Mean Weight (lbs.)	17	30	45	68	77	111	106	129	127	131	124	129	107	120	111
Mean Percent Standard Weight	90.8	87.3	80.1	79.4	86.8	85.0	90.8	89.0	105	92.5	103	92.3	93.4	103	95.0
Mean Skinfold Thickness mm. Arm	7.5	7.2	6.4	6.5	9.4	6.6	13.4	6.3	16.3	6.7	16.2	7.4	11.9	12.6	12.3
Mean Skinfold Thickness mm. Back	5.0	4.9	4.8	5.4	7.9	7.3	12.6	9.1	19.4	10.2	21.3	9.7	13.9	14.8	13.7
Mean Blood Pressure mm of Hg	—	—	95 / 57	99 / 59	106 / 62	115 / 67	114 / 68	124 / 73	114 / 72	128 / 78	129 / 80	137 / 80	147 / 86	115 / 64	116 / 71

PF – pregnant women *LF – lactating women*

men. The general incidence of high blood pressure among adults was 9.8 percent.

3. Laboratory Findings:

Low hemoglobin levels (table VI) were found in all the age groups, but were particularly prevalent among infants, pre-school children, pregnant and lactating women. The anemias observed were mostly of the hypochromic type as shown by the mean corpuscular hemoglobin concentrations. Only 13 subjects had MCHC's above 40 percent.

Total plasma proteins were lower than expected (table VII). A considerable number of values below 6 g per 100 ml were observed. Infants, children, adolescent boys, and adult males showed the highest prevalences of low values. Plasma albumin levels, however, were adequate as a whole with very few values below 3 g per 100 ml.

Vitamin A and carotene plasma levels are summarized in table VIII. Low vitamin A and carotene values were found in all age groups. Children under 9 years old and lactating women showed the highest prevalences of low-deficient levels of vitamin A. Considerable low-deficient carotene concentrations were observed among children under 2 years old and lactating women.

Plasma ascorbic acid levels were adequate or high in all the areas studied except at Barrio Naranjo in Moca where an elevated percentage of low values were observed. Nevertheless, we have evidence that leads up to believe that such low values were due to a few hours delay in the stabilization of the vitamin in the field.

The urinary excretion rates of the B vitamins is presented in table IX. Thiamine excretion was generally adequate with only 6 percent or 95 subjects in the low range and none deficient. Low values tended to prevail more among pregnant females and adults in general. Determinations of excretion rates of riboflavin showed that 32 percent of all subjects examined had low-deficient levels, representing the most frequent deficiency from the biochemical standpoint. Young and lactating women showed the highest prevalence of low-deficient excretion rates. Low urinary excretions of N-methylnicotinamide were also common in all age groups. The general prevalence was 21 percent. However, the occurrence of deficient excretions was much lower than those observed for riboflavin.

Table X shows the data obtained from the examination of stools for ova and parasites. Infections with helminths were common. The most frequent

TABLE VI: HEMATOLOGIC FINDINGS

Age Groups (yrs.)	<2	2-5	6-9	10-14		15-19		20-39		40-59		⩾ 60		16-44		All Ages
Sex	*MF*	*MF*	*MF*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*PF*	*LF*	*MF*
Hemoglobin gm. percent																
Number of determinations	88	306	306	209	176	126	119	135	175	158	131	77	52	40	39	2110
Mean	10.5	11.3	11.6	12.1	12.5	13.3	12.6	14.5	12.3	14.6	13.1	13.5	13.0	10.7	11.4	12.4
Percent < 10	31.8	17.6	12.4	13.4	4.0	6.3	6.7	4.4	10.9	3.8	5.3	10.4	3.8	27.5	23.1	11.1
Hematocrit																
Number of determinations	88	283	310	210	176	126	118	134	175	162	131	78	54	39	39	2123
Mean	33.2	35.2	36.5	38.3	38.8	41.8	39.5	44.6	38.3	44.7	40.9	42.6	40.3	34.3	35.7	38.9
M. C. H. C.																
Number of determinations	88	278	306	209	175	126	118	134	175	158	131	77	52	39	30	2111
Mean	31.8	31.8	31.9	31.5	32.1	31.9	30.1	32.8	31.7	33.2	31.8	31.7	32.6	30.9	31.5	31.6
Percent < 28	9.1	5.8	3.9	12.0	4.6	4.8	5.1	5.2	8.0	5.1	9.2	10.4	3.8	17.9	10.3	6.7

PF - Pregnant women *LF - Lactating women*

TABLE VII: PLASMA PROTEINS

Age Group (yrs.)	< 2	2-5	6-9	10 - 14		15 - 19		20 - 39		40 - 59		⩾ 60		16 - 44		All Ages
Sex	*MF*	*MF*	*MF*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*PF*	*LF*	MF
Total Proteins (gm. percent)																
Number	53	184	284	199	162	122	113	127	169	153	128	73	48	40	36	1891
Mean	6.6	6.9	7.3	7.2	7.3	7.1	7.7	7.2	7.4	7.3	7.6	7.4	7.3	7.5	7.4	7.3
Percent < 6.0	24.5	14.7	7.4	11.6	4.9	10.7	1.8	7.9	4.1	6.5	3.9	9.6	6.3	5.0	5.6	8.1
Albumin (gm. percent)																
Number	54	194	270	192	166	111	112	124	162	142	123	84	45	38	35	1851
Mean	4.6	5.1	4.5	4.5	4.6	4.7	4.8	4.7	4.7	4.6	4.6	4.5	4.7	4.2	4.7	4.6
Percent < 3.0	1.9	1.0	0.4	0	0	0	0	0.8	1.9	2.1	1.6	0	0	0	2.9	0.8

PF -- Pregnant women *LF -- Lactating women*

TABLE VIII: PLASMA VITAMIN A AND CAROTENE

Age Group	<2	2-5	6-9	10 - 14		15 - 19		20 - 39		40 - 59		⩾ 60		16 - 44		All Ages
Sex	*MF*	*MF*	*MF*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*MF*
Vitamin A (mcg. percent)																
Number	61	228	292	196	164	116	107	126	154	149	129	76	48	37	34	1917
Mean	34	36	39	47	46	51	52	61	50	62	51	56	59	54	43	49
Percent < 20	31	29	27	15	15	9	15	6	16	6	14	11	6	8	26	17
Carotene (mg. percent)																
Number	61	228	287	197	164	116	107	126	154	149	129	76	48	37	34	1913
Mean	81	108	118	124	120	106	126	113	118	128	121	117	116	130	106	117
Percent < 40	38	13	9	10	6	17	13	12	16	13	12	14	17	14	29	13

PF -- pregnant women *LF -- lactating women*

TABLE IX: URINARY EXCRETION OF THIAMINE, RIBOFLAVIN AND N-METHYLNICOTINAMIDE PER GRAM OF CREATININE

Age Group (yrs.)	2-5	6-9	10 - 14		15 - 19		20 - 39		40 - 59		⩾ 60		16 - 44		All Ages
Sex	*MF*	*MF*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*PF*	*LF*	*MF*
Thiamine mcg./gm.															
Number	61	254	191	162	116	109	121	153	152	121	67	53	37	33	1610
Percent < 66	3	2	2	2	6	3	11	8	8	12	9	8	19	12	6
Riboflavin mcg./gm.															
Number	57	265	191	165	116	104	122	149	148	118	73	49	37	32	1626
Percent < 80	4	18	24	28	35	38	39	59	32	36	38	24	35	47	32
N-Methylnicotinamide mg./gm.															
Number	60	261	194	164	115	112	123	148	152	116	69	55	37	40	1646
Percent < 1.6	22	18	18	26	23	17	21	27	20	24	20	16	8	33	21

were *Trichuris trichuira* and *Ancylostoma duodenale*. Moderate and severe trichuriasis were more frequent among children 2 to 9 years old. Hookworm had a slightly higher prevalence among school children and adolescents, and among males. The general incidence of ascariasis was low, but a considerable number of severe cases were observed particularly in small children. Intestinal protozoa capable of producing disease, such as *Endamoeba coli* and *Endamoeba histolytica*, were also found. The prevalence of these is also reported in table X.

Comments and Recommendations

1. Dietary Findings:

In terms of nutrients the diet was basically deficient in calories, calcium, vitamin A, riboflavin, and iron. In children and adolescents, the low caloric intakes were roughly in agreement with the observed retardation in height and weight. In adults, however, a great discrepancy was noted between the observed caloric ingestions and the recorded percent standard weights. Adult women showed adequate percent standard weights and low caloric intake, while men showed an adequate ingestion of calories and low percent standard weights. Such discrepancy can be explained by two factors: the much larger physical activity of men who worked mostly in cane fields, and that women, for cultural reasons, tended to eat less on the day she was visited by the dietary team. It is customary in our rural families for the women to serve her husband and children first, and then she would eat her food including what was left by the children. Eating leftovers was not considered a desirable practice in the presence of our dietitians.

The principal sources of iron in the diet were rice and beans in that order of importance. The low iron and vitamin C intakes in infants is explained by their diet which consisted almost exclusively of milk. The main sources of vitamin A were milk and tomatoes. A larger consumption of green and yellow vegetables would have greatly improved the intake of this vitamin.

Vitamin C intakes were in general acceptable. Most of the vitamin C was provided by starchy vegetables

TABLE X: INTESTINAL PARASITES
PERCENT PREVALENCE

Age	Sex	No.	TRICHURIS			ASCARIS			HOOKWORM			End. coli	End. hist.	G. lamblia	Strong stercol	End. nana	Other (1)
			Mild	*Mod.*	*Severe*	*Mild*	*Mod.*	*Severe*	*Mild*	*Mod.*	*Severe*						
< 2	MF	56	20	0	0	5	0	9	7	5	0	4	0	5	0	0	2
2 - 5	MF	253	43	13	11	9	4	12	24	4	2	15	4	5	1	2	1
6 - 9	MF	286	57	10	10	9	2	8	48	7	3	21	4	2	1	1	0
10–14	M	195	55	8	5	8	3	4	49	7	5	16	5	1	1	1	1
	F	158	49	6	5	9	3	6	41	6	3	20	6	1	3	3	0
15 - 19	M	114	57	4	0	3	1	3	46	11	9	16	3	1	1	2	0
	F	111	47	5	3	5	0	4	42	5	6	17	5	1	5	2	0
20 - 39	M	121	40	4	0	3	2	2	42	7	7	11	7	1	5	0	0
	F	180	42	4	3	5	2	4	36	4	3	22	5	2	2	4	0
40 - 59	M	144	32	1	1	5	0	0	31	7	5	17	8	0	2	3	1
	F	122	36	2	1	2	2	1	32	4	0	15	5	0	2	2	1
⩾ 60	M	72	28	1	0	7	3	0	38	6	3	7	1	0	0	3	0
	F	50	44	0	2	2	2	0	42	4	4	14	2	0	0	0	2
All Ages	MF	1862	45	6	5	6	2	5	38	6	4	16	5	2	2	2	0.4

(1) Includes Balantidium coli, Schistosoma manzoni, and Enterobius vermicularis.

such as green bananas, plantain, breadfruit, and potatoes. The consumption of citrus fruits, in general, was very poor.

In regard to the B vitamins, milled enriched rice was the main provider of thiamine and niacin. The principal dietary source of riboflavin was milk. This was particularly so in children under 2 years of age. Since the consumption of milk was low, a larger intake of this food would have greatly improved the overall intakes of riboflavin, calcium, and vitamin A.

In the two communities with higher family incomes and slightly better socio-economic status (Duey Alto and Masas 2) a tendency was observed towards a lesser ingestion of dried codfish and starchy vegetables with the introduction of a greater variety of meat products. As a result of lower ingestion of vitamin C was observed and a few low plasma albumin levels were found. It seems that the introduction of more expensive meat products such as beef, pork, and shrimp, at this level of income, could be undesirable from the standpoint of ascorbic acid and protein nutriture. The high biological value of dried-salted codfish protein, comparable to that of whole egg protein, and its significant supplementary action in the Puerto Rican rural diet was recently demonstrated by Goyco and Asenjo (14). On the other hand, higher consumption of chicken and eggs, which are less expensive and were practically absent from the diet, could greatly improve the general protein nutritional status.

At this point, it is worth mentioning that, contrary to the usual belief, Sunday meals were not any better than those eaten during other days of the week. In the families having the lowest incomes Sunday meals were even poorer. In many of them, Sunday supper consisted of lunch leftovers with the addition of coffee, milk or bread.

The low intake of mainly saturated fat represents an interesting situation in regard to the areas studied. Further investigation of the various environmental factors such as diet, physical activity, smoking, alcohol drinking, and so forth, of these people could provide some interesting data regarding the role of dietary fat in heart disease.

The preceding dietary findings lead us to make certain specific recommendations that require special attention such as: the establishment of a nutrition education program to correct or ameliorate the existing deficiencies aimed particularly at children and adolescents; the encouragement of a larger consumption of milk; emphasis on the consumption of citrus fruits, green and yellow vegetables, eggs and meat products, but not at the expense of reducing the intake of starchy vegetables and codfish; the introduction to infants of various other foods, such as fruits, juices, eggs, meat, and vitamin-mineral supplements, if necessary; the promotion of a more steady consumption of fresh fruits by adults.

2. Clinical Findings:

The clinical findings showed that there were few signs that could serve to identify or point out any specific deficiency disease. Very few subjects showed combined signs of undernutrition. The nutritional meaning of the observed signs must be weighed taking in consideration several other existing etiologic factors. For example, many of the cases of conjunctival injection observed in Duey Alto, San Germán, could be attributed to the prevailing dry weather and strong winds carrying large amounts of dust. Similarly, follicular hyperkeratosis was occasionally associated with Tinea versicolor in Mavilla, Vega Alta.

The retardation in growth in regard to chronological age shown by children and adolescents constituted our most salient clinical finding, thus implying the existence of a problem of undernutrition which fails in the realm of borderline cases manifested by unspecific signs and symptoms.

The fact that growth of infants was close to the standard, but fell progressively behind in children and catched up partially in late adolescence, can be attributed to a diet which was deficient in calories, calcium and several other nutrients. It is possible that proteins were partly being used to provide energy. The partial recovery of growth in late adolescence was probably due to a delay in the growth spurt, which in well nourished children appears much earlier. The fact that young adults tended to grow taller their elders suggest that some recovery was being accomplished in regard to the existing growth retardation. Weight for attained height was satisfactory thus rendering a more favorable prognosis upon the prevailing undernutrition.

The correlations observed between the skinfold thicknesses and the mean percent standard weights corroborates the fact that skinfold measurements serve as useful indexes of caloric nutriture in children and adults.

Blood pressure readings were significant since they were taken under some degree of stress (exercise and excitement). Most subjects were examined after long walks and considerable waiting, plus the emotional excitement associated with our presence in the area.

Nevertheless, practically all blood pressure readings were within normal limits, except for a few cases of mild hypertension. The higher incidence of hypertension in women than in men could be related to their much larger fat depots as shown by their skinfolds and mean percent standard weights. Perhaps the greater physical activity of men had some bearing in it. The low fat diet could also be a factor in the high prevalence of blood pressure and the rare occurrence of clinically detectable cardiac conditions.

These clinical data again call for the recommendation already made in relation to the dietary findings. A problem of undernutrition characterized by retardation of normal growth can best be tackled with an intensive health and nutrition education program directed mainly to children and adolescent, especially in a population which is predominantly young.

3. Laboratory Findings:

In general, the low hemoglobins and mean corpuscular hemoglobin concentrations observed in infants, children, and women were in agreement with the low iron intakes in the same groups.

Total plasma proteins values were lower than expected. The considerable number below 6 g per 100 ml that were observed, were not in agreement with the adequate intakes and the little clinical evidence of protein deficiency. However, the adequate plasma albumin levels observed render a satisfactory image regarding the existing protein nutritional status. Plasma albumin is a more susceptible and accurate index of protein nutriture than total plasma proteins.

Satisfactory ascorbic acid plasma values were in accordance with the adequate intake of this vitamin and the extremely low prevalence of clinical signs.

Plasma vitamin A and carotene levels were in general agreement with the poor dietary intake and the clinical signs found. Women, who showed lower intakes than men, also had higher prevalences of low-deficient concentrations. Good correlation between the dietary, clinical, and biochemical findings in regard to vitamin A nutriture is unusual due to the large storage of this vitamin in the liver; however, the typical Puerto Rican diet has always been known to be deficient in vitamin A (15, 16) thus providing a favorable situation for such correlation.

The excretion rates of thiamine and niacin were found below those expected for the apparently adequate intakes of these two vitamins. We have some unpublished evidence that the repeated washing of the rice, which is the main dietary source of these vitamins, could be an explanation for this discrepancy. Also, there is a possibility that rice enrichment regulations are not being properly fulfilled.

Riboflavin intake was generally low and likewise were the excretion rates.

With the exception of ascariasis, the prevalence of intestinal parasites was high. Crowded sleeping conditions, poor sanitary facilities, contaminated water supplies, and ignorance were an ideal setting for this situation. To what extent parasitic burden affected the nutritional status is something we have yet to determine, but it is an accepted fact that parasites and poor nutrition act sinergistically to produce undernutrition (17).

Summary

Five nutrition surveys were carried out in rural communities of Puerto Rico from 1963 to 1965. The surveys included the collection of dietary, clinical, and biochemical data. Stools were examined for ova and parasites.

The diet consisted usually of starchy vegetables, rice, beans, codfish, and coffee. It was basically deficient in calories, calcium, vitamin A, riboflavin, and iron. The ingestion of protein, thiamine, and niacin was satisfactory. Vitamin C intake was adequate except in infants and old women. The amount of fat in the diet was low and mostly saturated.

There were few of the clinical signs associated with deficiency diseases. The most significant clinical finding was retardation of growth as expressed in terms of height and weight for age.

Low hemoglobin levels were found particularly among infants, pre-school children, pregnant and lactating women. Seven percent of the subjects examined showed marked hypochromia. Low plasma vitamin A, carotene, and total proteins levels were observed in all age groups. Plasma ascorbic acid levels were adequate.

Urinary excretion rates of thiamine per gram of creatinine were adequate in most subjects. Low excretion rates of riboflavin and N-methylnicotinamide were common. Intestinal infections with *Trichuris* and hookworm were high.

Several comments and recommendations are made regarding the nutritional problems observed and how to solve them.

Resumen

Cinco encuestas nutricionales fueron realizadas en

comunidades rurales de Puerto Rico de 1963 a 1965. Se obtuvo información dietética, clínica, bioquímica, y coprológica.

Los alimentos preferidos fueron viandas, arroz, habichuelas, bacalao y café. La dieta fue deficiente en calorías, calcio, vitamina A, riboflavina y hierro. La ingesta de proteínas, tiamina y niacina fue satisfactoria. El consumo de ácido ascórbico fue adecuado con la excepción de infantes y mujeres de edad avanzada. La cantidad de grasa consumida fue baja, pero mayormente del tipo saturado.

La prevalencia de signos clínicos asociados con desnutrición fue muy baja. Medidas de talla y peso mostraron subnutrición moderada además de retraso en el crecimiento de niños y adolescentes.

Se observaron niveles bajos de hemoglobina particularmente en infantes, niños pre-escolares, y mujeres embarazadas y lactantes. El siete porciento de los sujetos examinados mostró hipocromia marcada. Se encontraron concentraciones sanguíncas bajas de vitamina A, caroteno y proteínas totales en todos los grupos de edad. Los valores plasmáticos de vitamina C fueron adecuados.

La excreción urinaria de tiamina fue adecuada. Excreciones bajas de riboflavina y N-metilnicotinamida fueron frecuentes.

La infestación intestinal con Trichuris y Uncinaria fue alta.

Se hacen varios comentarios y recomendaciones prácticas en relación a los problemas nutricionales observados y como resolverlos.

Acknowledgment

The authors wish to express their gratitude to the following agencies that were directly involved in the development of the surveys: Commission for the Improvement of Isolated Communities, U. S. Army Tropical Research and Medical Laboratories, Commonwealth Departments of Health and Education, University of Puerto Rico's Departments of Medicine, Parasitology and Home Economics; and the Veterans Administration Hospital, San Juan, Puerto Rico.

References

1. *Fernández, N. A., Burgos, J. C., Plough, I. C., Roberts, L. J. and Asenjo, C. F.:* Nutritional status of people in isolated areas of Puerto Rico: Survey of Barrio Mavilla, Vega Alta, Puerto Rico. Am. J. Clin. Nut., 17: 305, 1965.
2. *Fernández, N. A., Burgos, J. C., Plough, I. C., Roberts, L. J. and Asenjo, C. F.:* Nutritional status of people in isolated areas of Puerto Rico: Survey of Barrio Naranjo, Moca, Puerto Rico. Am. J. Clin. Nut. 19: 269, 1966.
3. *Fernández, N. A., Burgos, J. C., Roberts, L. J. and Asenjo, C. F.:* Nutritional status of people in isolated areas of Puerto Rico: Survey of Barrio Duey Alto, San Germán, Puerto Rico. Archivos Latinoamericanos de Nutrición 17: 215, 1967.
4. *Fernández, N. A., Burgos, J. C., Roberts, L. J. and Asenjo, C. F.:* Nutritional status of people in isolated areas of Puerto Rico: Survey of Barrio Masas 2, Gurabo, Puerto Rico. Bol. Asoc. Méd. de P. Rico, 59: 503, 1967.
5. *Fernández, N. A., Burgos, J. C., Roberts, L. J. and Asenjo, C. F.:* Nutritional status of people in isolated areas of Puerto Rico: Survey of Barrio Montones 4, Las Piedras, Puerto Rico. Journal Am. Dietetec Assoc., August 1968, In press.
6. *Plough, I. C., Fernández, N. A., Angel, C. R. and Roberts, L. J.:* A nutrition survey of three rural Puerto Rican communities. Bol. Asoc. Méd. de P. Rico, Supp., 55: No. 12-A, December 1963.
7. *Roberts, L. J.:* The Doña Elena projeet, University of Puerto Rico, 1963.
8. *Watt, B. K. and Merrill, A. L.:* The Composition of Foods-Raw, Processed, Prepared. U. S. Department of Agriculture Handbook No. 8, U. S. Government Printing Office, Washington, D. C., 1950.
9. *Roberts, L. J., Fogleman, R. D., Reguero, L. C. and Torres, R. M.:* Tabla de Composición de los Alimentos más Usados en Puerto Rico. Departamento de Economía Doméstica, Universidad de Puerto Rico, 1953.
10. Interdepartmental Committee on Nutrition for National Defense. A Manual for Nutrition Surveys. U. S. Government Printing Office, Washington, D. C., 1963.
11. Recommended Dietary Allowances. Food and Nutrition Board, National Academy of Seiences, National Researeh Council, Sixth Revised Edition, Publieation No. 1146, Washington, D. C., 1964.
12. *Nelson, W. E.:* Textbook of Pediatries, 7th. ed: W.B. Saunders Co., Philadelphia, 1959.
13. *Knot, V. B.:* Stature, leg girth and body weight of Puerto Rican private school children. Growth, 27: 157, 1963.
14. Goyco, J. A. and *Asenjo, C. F.:* La suplementación de la ración puertorriqueña con proteína de pescado, Arch. Lat. de Nutrición, 17: 241-251, 1967.
15. *Roberts, L. J. and Stefani, R. L.:* Patterns of Living in Puerto Rican Families, University of Puerto Rico Press, 1949.
16. *Cook, D. H., Axtmayer, J. H. and Dalmau, L. M.:* Nutritional studies of foodstuffs used in the Puerto Rican dietary, Puerto Rico J. Pub. Health and Tropical Medicine, 16: 3, 1940.
17. *Scrimshaw, N. S., Taylor, S. E. and Gordon, J. E.:* Interactions of nutrition and infection. Am. J. Med. Sc., 237: 367, 1959.

LUCHA ANTITUBERCULOSA

Cambios en Normas y Objetivos

J. Rodríguez Pastor, MD

Los cambios de los últimos veinte años en las normas y objetivos de la lucha antituberculosa han venido como consecuencia de una serie de descubrimientos, entre los cuales los más importantes han sido las drogas antituberculosas, especialmente la isoniacida, la estreptomicina y el ácido paraaminosalicílico (PAS). Con estas drogas se inició la *Era de la Quimioterapia*, algo enteramente nuevo en la campaña. Antes de eso, parte de la educación del enfermo tuberculoso consistía en enseñarle que "las medicinas no curan la tuberculosis". Se le aconsejaba que gastara su dinero en alimentos, y no en medicinas, puesto que no había droga alguna capaz de alterar el curso de la enfermedad. El tratamiento de entonces era el descanso absoluto en cama, combinado con el neumotórax, el neumoperitoneo o la cirugía torácica.

Cambios en las Técnicas del Tratamiento

Con el advenimiento de las drogas antituberculosas se descartaron el neumotórax y el neumoperitoneo. La cirugía torácica, limitada ahora a las resecciones parciales o totales del pulmón afectado, ha ido jugando un papel cada vez menos importante. Se descartó el antiguo concepto de que el descanso prolongado en cama es la medida esencial en el tratamiento de la tuberculosis. Ahora el paciente se acuesta durante el período agudo de la enfermedad, mientras hay síntomas como fiebre, hemoptisis, tos persistente, etc., pero se levanta tan pronto como se controlan estos síntomas, lo cual es cuestión de semanas. A los tres o cuatro meses ya puede irse para su casa, si estaba hospitalizado, y en seis u ocho meses ya está de vuelta en su trabajo. Esto contrasta notablemente con los dos años o más de descanso en cama y convalecencia que se consideraban imprescindibles para la curación de la enfermedad, antes de la era de la quimioterapia. Todavía creemos que el tratamiento con drogas debe ser de larga duración: no menos de dos o tres años; pero el período de invalidez se ha acortado a una fracción de lo que era antes, y el tomar las drogas no impide que el paciente trabaje y lleve una vida enteramente normal. El período de contagiosidad se ha acortado también notablemente. La gran mayoría de los pacientes están libres de bacilos en el esputo en dos meses, o menos, y las recaídas, en vez de ser comunes y graves como antes, son infrecuentes y más fáciles de controlar. Tampoco hay ya las graves complicaciones que se veían años atrás. Muy pocos médicos de hoy día han tenido la oportunidad de ver un caso de tuberculosis traqueal, o de tuberculosis intestinal, "tisis galopante" o meningitis tuberculosa — complicaciones terribles y relativamente frecuentes antes de la era de la quimioterapia.

Las drogas antituberculosas, que originalmente eran tres (estreptomicina, ácido para-aminosalicílico e isoniacida) han ido aumentando en número. Algunas de las más recientes, como la pirazinamida, la cicloserina, la viomicina, la etionamida y la kanamicina, se han usado extensamente en los hospitales, pero han resultado ser demasiado tóxicas y no lo bastante efectivas para uso general. Las que más prometen son el etambutol, que ya se está usando como sustituto del ácido para-aminosalicílico por ser menos tóxica, más fácil de tomar y más efectiva y el rifampin. Indudablemente vendrán nuevas y mejores drogas en los próximos años, que nos ayudarán a superar el gran defecto de las tres primeras, que es la tendencia a ser menos efectivas según los gérmenes se hacen resistentes a sus efectos. Para contrarrestar esta tendencia de los gérmenes a hacerse resistentes a las drogas antituberculosas, se están usando tres o más de ellas a la vez. Se recomienda que por lo menos se usen dos conjuntamente, y que no se interrumpa el tratamiento, sino que sea contínuo por dos o tres años. Es imprescindible que cada seis meses por lo menos se hagan pruebas de sensitividad para determinar si

---

Leído ante la asamblea anual del American College of Chest Physicians, capítulo de Puerto Rico, mayo 4 de 1968.

los gérmenes siguen siendo susceptibles a la acción de las drogas, en aquellos pacientes que no respondan adecuadamente.

Cambios en la Atención del Enfermo

La rapidez con que los pacientes tratados con drogas antituberculosas se vuelven asintomáticos ha reducido gradualmente la demanda por camas en los hospitales de tuberculosis, muchos de los cuales han tenido que cerrar sus puertas o dedicarse a tratar otra clase de pacientes. En cambio, la importancia de los dispensarios o consultorios como centros para el tratamiento de pacientes de tuberculosis ha ido en aumento.

En 1953, cuando la era de la quimioterapia estaba en su infancia, los hospitales de tuberculosis de la ciudad de Nueva York albergaban un total de 5,200 enfermos. En 1961, ocho años después, ese total se había reducido a 1,800. Por otra parte, el número de pacientes tuberculosos bajo tratamiento en las clínicas externas (Chest Clinics) subió de casi ninguno en 1953 a 3,800 en 1961.

Hoy en día la gran mayoría de los pacientes tuberculosos en todo el mundo permanecen en sus hogares y se tratan en dispensarios o consultorios después de un corto período de hospitalización. En algunos sitios el hospital general está sustituyendo al hospital de tuberculosis (2). Al reducirse la contagiosidad de la tuberculosis el internista y el práctico general se están haciendo cargo de muchos casos que antes sólo el tisiólogo se arriesgaba a tratar. Anteriormente era inconcebible que los enfermos tuberculosos se mezclaran con otros enfermos en una sala de espera. Hoy, esa es la práctica corriente.

Cambios en las Técnicas de Prevención

El concepto de la contagiosidad de la tuberculosis ha sufrido un gran cambio. Muchas medidas de precaución que antes se consideraban esenciales para evitar contagios, ya están descartadas. Antes se recomendaba que las enfermeras usaran batas, y en algunos casos mascarillas de gaza, al entrar a las salas de pacientes tuberculosos. Las batas se han descartado. Las mascarillas se usan solamente en casos especiales, cuando haya que bregar íntimamente (cara a cara) con algún paciente bacilífero que tosa con frecuencia. Antes todos los pacientes llevaban mascarillas de papel o gaza. Hoy sólo las llevan los enfermos con bacilos en el esputo que no se cubren la boca al toser. Antes se recomendaba que las ropas, utensilios y ropa de cama del paciente se guardaran y lavaran aparte y se esterilizaran con agua hirviendo. Hoy no hay reglas especiales en cuanto a eso. La esterilización de utensilios y ropa ya no se juzga imprescindible. Todos estos cambios en las medidas de precaución han venido como consecuencia de la poca contagiosidad del enfermo sometido a la quimioterapia. Como dice Soper (4), el aislamiento físico se ha cambiado por el aislamiento químico. Las drogas hacen desaparecer la tos y eliminan rápidamente los bacilos del esputo. Además, se ha comprobado que la tuberculosis pulmonar sólo se transmite a través de las gotas diminutas de esputo que se quedan flotando en el aire después de la tos. Con raras excepciones, el contagio es siempre a través del aire. Los bacilos que penetran en el pulmón son los que se quedan flotando en las partículas más pequeñas del esputo, al salir éstas con fuerza de la boca o la nariz del paciente que tosa o estornuda. Estas partículas de humedad flotan indefinidamente en el aire, y son peligrosas, porque los bacilos que contienen sobreviven y pueden penetrar profundamente en el pulmón. Las gotas de esputo más pesadas, las que caen al piso o sobre la ropa o artículos que usa el paciente no ofrecen peligro, porque los bacilos que contienen no sobreviven. Lo que se recomienda es esterilizar el aire mediante el uso de lámparas ultravioletas en todos los sitios donde acuden pacientes bacilíferos, y mantener una buena ventilación. Desde luego, la limpieza es siempre necesaria. Mantener el paciente y sus alrededores limpios sigue siendo una medida de primera importancia. Igualmente importante es que el paciente bacilífero se cubra la boca y la nariz al toser y que expectore en servilletas de papel que deberán ser depositadas en fundas de papel para quemarse por las tardes.

Cambios en la Interpretación de la Prueba de la Tuberculina

Anteriormente, una prueba de tuberculina positiva se interpretaba siempre como evidencia irrefutable de que existía infección causada por el bacilo de Koch. Hoy se sabe que muchas reacciones tuberculínicas débiles, es decir, con induración de menos de 8 o 10 milímetros después de la prueba de Mantoux con la dosis intermedia de PPD–S, son reacciones cruzadas (cross-reactions) debidas a infecciones causadas por micobacterias ácidorresistentes no tuberculosas. Estas infecciones no tuberculosas que causan reacciones tuberculínicas son tan frecuentes en algu-

nas zonas, como el sureste de Estados Unidos, que han podido comprobarse hasta en las dos terceras partes de la población. Aquí en Puerto Rico, de acuerdo con Sifontes, Alvarez y De la Rosa (1), cerca del 40 porciento de los adolescentes que residen en los hogares de niños, y el 46 porciento de los estudiantes de medicina y dentistería están infectados con micobacterias ácidorresistentes no tuberculosas, y por lo tanto, dan reacciones débiles a la tuberculina del bacilo de Koch, sin tener tuberculosis. Es importante por lo tanto, que al hacer pruebas de tuberculina en Puerto Rico se apliquen, junto con la tuberculina del bacilo de la tuberculosis (PPD-S), una o dos tuberculinas de micobacterias ácidorresistentes no tuberculosas, como PPD-B (Battey) y PPD-G (Gause). Si la reacción causada por la tuberculina PPD-S es mayor que cualquiera de las otras, ya sabemos que se trata de una infección tuberculosa. Si por el contrario, la reacción a las tuberculinas de las micobacterias no tuberculosas es mayor que la que se obtiene con PPD-S, sabemos que se trata de una infección con micobacterias atípicas (no tuberculosas).

Se sabe que algunas micobacterias atípicas pueden causar lesiones pulmonares tan parecidas a la tuberculosis, que no es posible diferenciarlas ni aún por estudios patológicos. El diagnóstico se hace exclusivamente a base de los cultivos del esputo. De ahí la importancia creciente de estos cultivos. Antes nos conformábamos con teñir una laminilla y ver los bacilos ácidorresistentes bajo el microscopio. Una laminilla de esputo que mostrara bacilos ácidorresistentes era evidencia irrefutable de tuberculosis. Hoy exigimos el cultivo del esputo en todos los casos, porque sabemos que sólo el cultivo puede distinguir los bacilos tuberculosos de las micobacterias ácidorresistentes no tuberculosas. Se cree que hasta un 10 porciento de los casos que entran a los hospitales con diagnóstico de tuberculosis en ciertas zonas geográficas pueden ser casos de enfermedad pulmonar no tuberculosa debida a micobacterias atípicas.

Todo esto ha hecho surgir un nuevo término. Hablamos ahora de micobacteriosis, para designar las enfermedades causadas por micobacterias, entre éstas la tuberculosis.

Un detalle interesante en relación con las micobacterias atípicas es que producen cierta inmunidad contra el bacilo de la tuberculosis. En las zonas con un índice alto de infección con bacterias atípicas, la vacuna BCG es mucho menos efectiva (6). La protección que ofrecen las micobacterias no tuberculosas contra la tuberculosis parece explicar ciertas variaciones geográficas en la incidencia de esta enfermedad (6, 8, 9).

La Tendencia a Atender los Enfermos en Consultorios y Hospitales Generales

En octubre de 1958, el Comité de Terapia de la American Trudean Society (2) publicó una declaración sobre el cuidado domiciliario del paciente tuberculoso, y entre otros pronunciamientos importantes hizo el siguiente: "Bajo ciertas circunstancias, puede ser preferible que los enfermos indigentes reciban tratamiento en consultorios privados y en sus propios hogares, con cargo a los fondos públicos, antes que en hospitales y dispensarios del gobierno, sobre todo en aquellos sitios en que hay médicos privados con experiencia en la quimioterapia de la tuberculosis".

Esta recomendación, hecha diez años atrás, es de suma importancia en el día de hoy. Podría ser la clave que resolviera muchos de los problemas con que se confronta la campaña antituberculosa, especialmente en lo que concierne al seguimiento de los pacientes. Hay enfermos que se niegan a ir a las clínicas de tuberculosis del gobierno, y en cambio irían con gusto donde un médico particular, si el gobierno pagara la consulta. Por lo menos podría intentarse una combinación de ambos sistemas, y al cabo de unos años sabríamos exactamente cuál es el mejor.

El problema de hospitalizar el enfermo tuberculoso podría resolverse satisfactoriamente y sin grandes dispendios adicionales por parte del gobierno, si se utilizaran los hospitales privados para el tratamiento de los enfermos pobres con cargo a los fondos públicos. Esta idea no es nueva. Fue propuesta por el Dr. Eugenio Fernández García hace más de 35 años, cuando apenas había hospitales de tuberculosis en Puerto Rico.

Las nuevas tendencias corroboran lo juicioso de esta idea del Dr. Fernández García. En junio de 1961 se celebró un importante simposio en el Colegio de Medicina de la Universidad del Estado de Nueva York (2), para considerar si valdría la pena hospitalizar los enfermos tuberculosos de la urbe neoyorquina en los hospitales generales públicos y privados de la ciudad. Asistieron todas las grandes autoridades en tuberculosis, salud pública y administración de hospitales, y después de un día de discusiones llegaron a las siguientes conclusiones:

1) Hay creciente evidencia de que la contagiosidad de la tuberculosis es extremadamente baja cuando se somete el enfermo a un buen régimen de quimioterapia.

2) El paciente tuberculoso padece con frecuencia de otras enfermedades (tales como diabetes, trastornos cardiovasculares, neurosis, etc.), y el personal y equipo con que cuenta el hospital general facilitan el diagnóstico y tratamiento de estas condiciones concomitantes.

3) Cuando el hospital general acepta casos de tuberculosis, se facilita el adiestramiento de su personal médico en el diagnóstico y tratamiento de esta enfermedad y en el manejo de otras enfermedades transmisibles. Tanto los pacientes como el hospital se benefician, cuando se ofrecen esta clase de servicios en un hospital general.

4) Un servicio de esta naturaleza requiere que el hospital cuente con una clínica externa para enfermedades pulmonares, que funcione en íntima cooperación con el Departamento de Tuberculosis del hospital.

5) El gobierno debe pagar al hospital por cada paciente tuberculoso que éste albergue. El pago por cada paciente no debe ser menor de lo que cobre regularmente el hospital por otros pacientes.

6) Deben hacerse pruebas de tuberculina y placas de rayos-X del pecho periódicamente a todo el personal del hospital.

7) El hospital debe organizar un plan para el control de la tuberculosis en la comunidad, que incluya placa de rayos-X del pecho a todo paciente que ingrese, bien al hospital o a la clínica externa, y una campaña educativa para la protección del personal del hospital.

Los Hospitales en Puerto Rico

A fines de diciembre de 1967 había 970 enfermos recluídos en los hospitales de tuberculosis de Puerto Rico. Esto es aproximadamente la mitad de los pacientes tuberculosos que había en hospitales hace diez años. Dentro de diez años más no habrá más de 500 enfermos tuberculosos que requieran hospitalización. Para esa época será posible repartir estos enfermos en diez o doce hospitales generales, privados y públicos, mediante contratos que obliguen al gobierno a pagar al hospital una cantidad razonable por cada enfermo tuberculoso que acepte. Esto haría posible que el enfermo tuberculoso pudiera escoger entre varios hospitales, en vez de verse obligado a aceptar el que le asignen, y sin duda sería un incentivo importante para neutralizar la resistencia que muestran ahora muchos pacientes cuando se les habla de hospitalizarse.

Siempre tendríamos el problema de los tuberculosos crónicos incurables que requieren atención médica durante el resto de sus vidas. Las estadísticas nos dicen que la tuberculosis se está convirtiendo rápidamente en una enfermedad de la vejez. Esto se debe a que los focos de contagio tuberculoso han ido disminuyendo hasta el punto en que cada día son menos los que contraen la infección. Se cree que por lo menos el 75 porciento de los casos nuevos de tuberculosis que ocurren ahora provienen de infecciones viejas, adquiridas en los tiempos anteriores a la era de la quimioterapia. Los enfermos de hoy, en su gran mayoría, son los que se infectaron hace veinte o treinta años, cuando abundaban los focos de contagio. Son, por lo tanto, personas de mayor edad. En el año 1967, el 47 porciento de los casos de tuberculosis activa y el 72 porciento de los que murieron de tuberculosis en Puerto Rico eran personas mayores de 45 años (12). Muchos de los enfermos tuberculosos que tenemos ahora han entrado ya en las edades en que la bronquiestasia, el enfisema, las enfermedades cardiovasculares, el cáncer y la diabetes se añaden a los estragos que causa el bacilo de Koch. Algunos de estos enfermos no tienen hogar, y otros, aunque lo tengan, son rechazados por sus propios familiares, debido a la naturaleza contagiosa de su enfermedad. Un sentido elemental de caridad cristiana requiere que alguna entidad pública se haga cargo de estos enfermos crónicos que no tienen quién sea por ellos. Para estos y otros enfermos crónicos que se hallan en iguales o parecidas circunstancias debe haber instituciones especiales que sean una combinación de hospital y hogar, lo cual podría conseguirse utilizando, con las alteraciones que fueren necesarias, uno o más de los hospitales de tuberculosis que han de quedar vacíos cuando disminuya la demanda de camas para los casos subagudos de la enfermedad.

La Isoniacida como Preventivo de la Tuberculosis

Uno de los descubrimientos que han afectado notablemente los métodos y objetivos de la lucha antituberculosa es el uso de la isoniacida como preventivo de la tuberculosis.

Extensos estudios del Servicio Federal de Salud Pública han comprobado que la isoniacida, tomada

diariamente por períodos de un año, puede evitar el desarrollo de la tuberculosis por lo menos en 3 de cada 4 niños expuestos al contagio. Esto ha estimulado grandes campañas para conseguir que todos los contactos de casos de tuberculosis (adultos y niños) reciban tabletas de isoniacida por un año entero, aún cuando den negativo a la prueba de tuberculina. Asímismo se están dando tabletas de isoniacida por un año o más a todos los reactores tuberculínicos recientes, y a los casos de tuberculosis inactiva que no habían recibido quimioterapia anteriormente.

Este reparto de tabletas de isoniacida en grande escala ha creado problemas en el seguimiento de las personas a quienes se quiere beneficiar, ya que no es nada fácil conseguir que miles de personas que se sienten perfectamente bien se sometan a largos períodos de tratamiento con pastillas que deben tomarse diariamente. La experiencia en muchos sitios, incluso en Puerto Rico, es que la mayoría de estas personas no toman las pastillas a menos de que alguien se ocupe de recordárselos contínuamente, o de dárselas. En algunos países se han organizado centros de distribución en las barriadas donde residen los que han de recibir las pastillas, para que se les haga fácil ir a buscarlas. En otros sitios, las enfermeras llevan las tabletas a las casas y luego recogen muestras de orina de los que las toman, para que el laboratorio compruebe si las están usando. Indudablemente, la quimioprofilaxis con isoniacida en grande escala requiere un sistema de seguimiento sumamente eficiente y bastante costoso. Sólo con un sistema de esa clase pueden esperarse buenos resultados.

La vacuna BCG se sigue usando extensamente en muchas partes del mundo para evitar la tuberculosis, y tiene la gran ventaja de que se aplica una sola vez y apenas requiere seguimiento de los vacunados. Se cree que por lo menos cien millones de personas han sido vacunadas en el mundo entero con BCG. Sin embargo, en Estados Unidos el consenso de opinión entre los expertos es contrario al uso extenso de esta vacuna. Una de las mayores objeciones se basa en que el uso extenso de la vacuna BCG convierte a toda la población en reactores tuberculínicos, inutilizando así la prueba de la tuberculina como índice de infección tuberculosa. Otra objeción es las grandes variaciones en la efectividad de la vacuna. Aunque algunos estudios parecen indicar que protege en un 80 porciento de los casos, los estudios del Servicio Federal de Salud Pública (13) en el sur de Estados Unidos a través de un período de 14 años revelaron sólo un 14 porciento de protección en los vacunados, y estudios simultáneos hechos en Puerto Rico a partir del 1949 dieron resultados igualmente desalentadores. Hasta qué punto esta pobre demostración de la vacuna BCG en el sur de Estados Unidos y en Puerto Rico se debe a la conocida prevalencia en ambos sitios de infecciones causadas por micobacterias atípicas ácidorresistentes que presumiblemente protegen también contra la tuberculosis, es algo que todavía no se ha determinado.

En el número de marzo de 1967 del "American Review of Respiratory Diseases" (15) aparece una declaración del *American Thoracic Society* en que recomienda que no se use la vacuna BCG en grupos o comunidades de los Estados Unidos, y que no se aplique al personal médico o para-médico, ni a los reclusos o empleados de instituciones penales o mentales, ya que es importante reconocer la conversión tuberculínica en el momento en que ocurre, para poder utilizar la quimioprofilaxis y a la vez identificar y tratar los casos contagiosos. La única circunstancia que justifica el uso de la vacuna BCG en Estados Unidos, según esta opinión, es el contacto inevitable de personas no infectadas con casos contagiosos que no aceptan o no pueden obtener tratamiento eficaz para su condición. A pesar de esto, la vacuna BCG se está usando en ciertos grupos poblacionales de la ciudad de Nueva York, y hay prestigiosos especialistas en Estados Unidos y en el mundo entero que insisten en recomendar su uso extenso en todos los grupos poblacionales con un alto índice de morbilidad tuberculosa.

Los que se oponen al uso de la vacuna BCG afirman que la utilidad de esta vacuna va siendo menor a medida que disminuyen las oportunidades de adquirir la infección tuberculosa. La vacuna BCG se considera efectiva sólo en los no infectados. Cuando los no infectados no corren peligro de infectarse, como ocurre generalmente en Estados Unidos, la vacuna no tiene utilidad alguna. En cambio, la quimioprofilaxis con isoniacida siempre es útil, porque sólo se usa en los ya infectados, que son el grupo de donde salen la gran mayoría de los enfermos de tuberculosis. A estos, a los ya infectados, es a los que hay que proteger. Y estos son precisamente los que la vacuna BCG no protege. Además, dicen estas autoridades, la quimioprofilaxis no inutiliza la prueba tuberculínica, como lo hace la vacuna BCG.

La Rehabilitación

La rápida desaparición de los síntomas y la cura-

ción efectiva de la enfermedad han revolucionado las técnicas y objetivos de la rehabilitación del tuberculoso. Anteriormente la rehabilitación de estos enfermos era una preparación para un largo período de invalidez. Se daba por sentado que el enfermo requería una convalecencia de varios años, y que durante ese tiempo sólo podría hacer trabajos muy livianos, y eso por no más de 4 o 6 horas al día. Si la ocupación anterior del paciente requería algún esfuerzo físico, se le sometía a un largo período de adiestramiento en ocupaciones sedentarias. Se temía que si no se procedía de este modo, el paciente seguramente sufriría una recaída. Ahora la tendencia es hacia la rehabilitación completa en el menor tiempo posible, y se prefiere que el paciente vuelva a la ocupación que tenía antes de enfermarse, aunque se trate de labores que requieran considerable esfuerzo físico. Se ha probado que con los tratamientos modernos el paciente promedio queda tan bien curado que hay poco peligro de recaídas, aún cuando se emplee en ocupaciones como guiar camiones, trabajar en labores agrícolas o levantar cargas en los muelles. Como dicen Hollander y Chapman (3) "las tradiciones y los métodos que eran válidos en los días anteriores a la quimioterapia ya no tienen validez. Los pacientes con lesiones mínimas y moderadas y hasta muchos que han tenido lesiones muy avanzadas, pueden tratarse y rehabilitarse totalmente en un período de seis a diez meses con una proporción sumamente baja de recaídas, si las cavernas se cierran y el esputo sigue siendo negativo, a condición de que no se suspenda la quimioterapia". En otras palabras, no podemos descuidar al paciente. El tratamiento con drogas tiene que seguirse sin interrupciones por dos o tres años; pero si sabemos hacer las cosas, el paciente puede curarse y rehabilitarse en menor tiempo y con mayor seguridad que nunca antes.

Erradicación vs. Control

Hace 10 años, en 1958, el Dr. Carrol Palmer advirtió que era ya tiempo de ir enfocando nuestra campaña hacia la erradicación, antes que hacia el control de la tuberculosis. En 1962 el Dr. Fred L. Soper repitió la advertencia, en una interesante monografía que apareció en el *American Journal of Public Health* (6). El Dr. Soper empieza aclarando la diferencia entre *erradicación* y *control*. "El objetivo del control", nos dice, "es reducir la incidencia de una enfermedad hasta un nivel bajo y mantener ese nivel bajo para siempre. En cambio, el objetivo de la erradicación es eliminar por completo la posibilidad de que la enfermedad pueda ocurrir, aún cuando no se tomen medidas preventivas". En control uno se siente satisfecho si la incidencia de la enfermedad se reduce. En erradicación lo único que satisface es la desaparición absoluta de la enfermedad. En control el progreso se mide por lo que se ha hecho. En erradicación el progreso se mide por lo que queda por hacer.

En Estados Unidos se ha esbozado un programa para la erradicación de la tuberculosis, que se centraliza en el niño. Le llaman el "Child-Centered Program" (14). Consiste en lo siguiente:

1) Aplicación de la prueba de la tuberculina a todos los niños, en el momento de entrar a la escuela, es decir, en el primer grado, y al llegar a la adolescencia, (en el séptimo grado).

2) Placas de rayos-X del pecho y tratamiento profiláctico con isoniacida por un año a todos los niños que reaccionen positivamente a la tuberculina.

3) Pruebas de tuberculina a todo el personal de la escuela, incluyendo los maestros, y a los familiares o "asociados" de los niños que reaccionen positivamente. Placas de rayos-X del pecho a los reactores.

Este es un programa ambicioso, que requiere un dispendio considerable de fondos y energía. No tiene valor a menos que se completen todas sus fases. Su propósito es, no solamente averiguar qué niños reaccionan a la tuberculina, sino de dónde les viene la infección, y asegurarse de que tanto el niño como la persona que le transmitió la infección, queden protegidos.

En la campaña para el control de una enfermedad se pueden permitir algunos casos y algunas muertes. En el concepto de erradicación un solo caso es demasiado. Erradicación viene de erradicar, es decir, sacar de raíz. No se puede hablar de "erradicación parcial". La erradicación no es concebible sino en términos absolutos. Para erradicar la tuberculosis tendríamos que adoptar nuevas actitudes, revolucionar nuestro sistema de trabajo, cambiar los presupuestos y las técnicas, iniciar una nueva educación de nuestro personal y del público. Tendríamos que empezar de nuevo, con una nueva filosofía, con nuevas metas y mayores exigencias.

El Problema en Puerto Rico

En 1967 la morbilidad por tuberculosis en Puerto Rico fue de 43.6 casos nuevos por 100,000 de población y la mortalidad, 14.6 muertes por cada 100,000 habitantes, tasas verdaderamente bajas cuando se les compara con las que prevalecían en la década del

treinta al cuarenta. Sin embargo, como el progreso no puede juzgarse en términos absolutos, sino que es siempre relativo, tenemos que juzgar nuestros logros en la lucha antituberculosa a la luz de lo que se ha alcanzado en los países más civilizados del mundo, y cuando hacemos esto nos damos cuenta de lo mucho que nos falta por hacer, ya que en esos países las tasas de morbilidad por tuberculosis bajan de 25 casos nuevos por 100,000 de población y la mortalidad es inferior a cuatro muertes por 100,000. Pruebas de tuberculina recientes en áreas urbanas de Puerto Rico mostraron un índice de infección tuberculosa de 3 porciento en los niños de primer grado, y 15 porciento entre los de séptimo grado. Pruebas similares en ciudades como Pittsburg y Saint Louis muestran índices de infección de 1 porciento en primer grado y 3 porciento en séptimo grado. Estas comparaciones nos dicen que nuestra mortalidad tuberculosa es todavía cuatro veces más alta que la de Estados Unidos; que la morbilidad es cerca del doble de la del continente, y que el índice de infección tuberculosa entre nosotros es de tres a cinco veces mayor que el de ellos. En términos de mortalidad tuberculosa estamos ahora en Puerto Rico en las mismas condiciones en que estaban los Estados Unidos continentales hace quince años. Estamos, pues, quince años atrasados. En 1965 murieron de tuberculosis en San Juan 97 personas. En Miami, con igual población, murieron 34. En San Francisco, con tres veces la población de San Juan, murieron 56. En New Orleans, con más del doble de la población de San Juan, murieron 73. Honolulu, con más población que San Juan, sólo tuvo ese año once muertes por tuberculosis (la novena parte de las de San Juan).

Hacia fines del año 1967 había en Puerto Rico 25,228 casos de tuberculosis. De éstos, 5,705 eran casos activos. El 20 porciento de los casos activos estaban hospitalizados, y los restantes vivían en sus hogares y asistían a los centros antituberculosos. Un número relativamente pequeño asistían a los consultorios de médicos particulares y no iban a los centros. De esos probablemente no tenemos constancia.

Los casos activos registrados en los Centros Antituberculosos se distribuyen del siguiente modo: el 50 porciento son de la región noreste, que incluye el área metropolitana; el 18 porciento de la región este, que incluye a Caguas, Cayey, Juncos, Humacao y Fajardo; el 17 porciento de la región norte, que incluye a Arecibo y pueblos limítrofes; el 9 porciento de la región sur, y el 6 porciento de la región oeste. Así, pues, el 50 porciento de los casos activos de tuberculosis viven en el área metropolitana, y el 85 porciento están en las regiones noreste, norte y este del país.

Nuestro plan de campaña antituberculosa no puede ser exactamente igual al de los Estados Unidos. Tiene que amoldarse a nuestras circunstancias. En esto, lo mismo que en lo político y en todo lo demás, es necesario que nuestros remedios se ajusten a nuestras realidades. Nuestra campaña antituberculosa desde 1933 a esta parte ha sido buena y efectiva; pero a pesar de todo lo que hemos hecho, todavía estamos retrasados por 15 años, cuando nos comparamos con los pueblos más civilizados. No nos podemos quedar retrasados. Tenemos que anular esa distancia. ¿Cómo vamos a hacerlo?

Hemos llegado a una etapa en que sólo se pueden obtener resultados mediante una organización altamente eficiente. No basta con que los métodos y la labor sean buenos. Tienen que ser excelentes. No podemos conformarnos con que la mitad de los enfermos se hagan estudios bacteriológicos del esputo con regularidad, ni con que las dos terceras partes reciban tratamiento. Tenemos que protestar y sentirnos inconformes hasta que *todos* los enfermos reciban sus exámenes y tratamientos como Dios y la ciencia mandan.

El programa de erradicación que se centra en el niño debemos desarrollarlo plenamente; pero sólo en una parte de la isla por ahora. Un programa de esta clase no significa nada si no se completa en todas sus fases. Es mejor limitar el área geográfica y hacerlo bien, que extenderse por toda la isla y hacerlo incompleto. Podríamos empezarlo en algún sitio con alta incidencia de tuberculosis. Tendríamos que hacer una gran concentración de recursos en ese sitio, para poder contar con todo el personal técnico que fuera necesario; todo el equipo, todo el material, toda la transportación que pudiéramos necesitar. Tendríamos que estudiar y planificar el programa con gran cuidado, para que toda la comunidad pudiera compartir con nosotros el entusiasmo de la labor. La operación "Puente Blanco" de la Asociación General Antituberculosa en Cataño, podría servirnos de precedente.

En el programa insular, la prioridad número uno debe seguir siendo el enfermo con tuberculosis activa. Debemos exigir que se le ofrezca el mejor tratamiento disponible, la mejor atención, y cerciorarnos de que no quede uno sólo de ellos sin tratar.

En el programa profiláctico no debemos preguntar cuántos niños recibieron tabletas de isoniacida para el tratamiento preventivo, sino cuántos de los que las necesitaban no las recibieron, y cuántos de los que las recibieron no se las tomaron. Es mejor insistir en lo que no se ha hecho, en lo que nos falta por hacer, para dar a entender claramente nuestra intención de exigir una labor completa, un esfuerzo óptimo que nos lleve en el menor tiempo posible a la meta que nos proponemos alcanzar: la erradicación absoluta de la enfermedad contagiosa más común y temible que hay en nuestro país y en el mundo.

No hay duda de que la labor realizada merece crédito; pero el atleta que está en mitad de una carrera no se detiene a contar los metros lineales que ya ha recorrido, sino que pone todo su empeño en cubrir cuanto antes la distancia que aún le falta para llegar a la meta. Lo importante para nosotros es llegar, y en esta carrera estamos quince años atrasados.

References

1. *Sifontes, José E., Alvarez, Félix R. y De la Rosa, Josefa C.:* The mycobacterioses in Puerto Rico (Datos extraídos del manuscrito).
2. Treatment of tuberculosis in general hospitals - Informe de un simposio celebrado en el Colegio de Medicina de la Universidad del Estado de New York en junio 21 de 1961, New York State Jour. of Med., 62, 1: 1962.
3. *Hollander, A. Gerson y Chapman, Carrie E.:* Present day concept of rehabilitation in tuberculosis, Amer. Rev. Resp. Dis., 82, 1: 1960.
4. *Soper, Fred L.:* Problems to be solved if the eradication of tuberculosis is to be realized. Amer. Public Health, 52, 5: 1962.
5. *Edwards, Lydia B.:* Current status of the tuberculin test, New York Acad. of Sci., 106, 1: 1963.
6. *Weijsmuller, C.:* Observations on BCG induced Tuberculin Sensitivity in Netherlands New Guinea, Overdruk vit "Selected Papers", Vol. 1, pag. 1-17.
7. Tuberculosis in the Sixties. An Overview, written by the staff of the Tuberculosis branch, Communicable Disease Center, U. S. Public Health Service.
8. *Palmer, Carrol E. y Edwards, Lydia B.:* Geographic variations in the prevalence of sensitivity to tuberculin (PPD-S) and to the battey antigen (PPD-B) throughout the United States, Bulletin of the International Union Against Tuberculosis, 32, No. 2, 1962.
9. *Edwards, Lydia B. y Palmer Carroll E.:* Identification of mycobacterial infection, presented at the National Tuberculosis Conference at the National Communicable Disease Center, Atlanta, Georgia, June 13, 1967.
10. *Ferebee, Shirley H.:* Is Eradication Too much Trouble? presented at the N. T. A. meeting held in San Francisco, California, May 24, 1966.
11. *Acosta, Guillermo:* Informe Anual del Programa de Control de Tuberculosis, del Departamento de Salud, 1966-67.
12. División de Registro Demográfico y Estadísticas Vitales, Departamento de Salud de Puerto Rico. "Informe Anual de Estadísticas Vitales, 1967".
13. *Comstock, G. W. and Palmer, C. E.:* Long-Term results of BCG vaccination in the southern United States, The American Review of Respiratory Diseases, 93: 2, 1966.
14. A Child-Centered Program to Prevent Tuberculosis, a publication of the U. S. Public Health Service, Washington, D. C., March 1965.
15. La Contagiosidad de la Tuberculosis. Nuevos Conceptos sobre la Transmisión de la Enfermedad. Declaración oficial de la *American Thoracic Society.* Publicado por la Asociación General Antituberculosa de Puerto Rico, abril de 1967.
16. *Tucker, William B.:* Treatment of tuberculosis in a general hospital, Public Health reports, 73: 10, 1958.
17. *Dressler, Sidney H.:* The changing focus in tuberculosis control, Medical Times, 93: 7, 1965.
18. BCG in Algeria, 1967, A revolution in Progress, T Quarterly Review, Jan. 1968, published by the International Union against Tuberculosis.
19. *Sutherland, Ian:* The Degree and Duration of Protection Induced by BCG Vaccination. International Tuberculosis Digest (3).
20. *Palmer, Carroll E. and Edwards, Lydia B.:* Identifying The Tuberculosis Infected. The Dual Test Technique, presented at the National Tuberculosis Conference, National Communicable Disease Center, Atlanta, Georgia, April 1968.

LA MONILIA PSILOSIS DE ASHFORD Y LA CANDIDA ALBICANS DE HOY

Margarita Silva-Hutner, PhD

Como es bien sabido hoy día en el mundo científico, el hongo que el doctor Ashford aisló con mayor frecuencia en las heces fecales de sus pacientes de esprú, y al cual llamó *Monilia psilosis* (1, 2), es una levadura cuyo nombre actual es *Cándida álbicans*.

Según la explicación del doctor Carrión en la segunda conferencia de esta serie (3), Ashford dedicó muchos años al estudio de ésta y otras levaduras creyendo que jugaban un papel de importancia en la etiología del esprú (4, 5). Observó y publicó descripciones de su morfología, en colonias macroscópicas y bajo el microscopio, en medios de cultivo especialmente preparados. Estudió sus reacciones fermentativas sobre las azúcares, su efecto digestivo sobre las proteínas y su patología en el hombre y en los animales de laboratorio. Muchos de aquellos estudios se hicieron y publicaron con la colaboración de Luz María Dalmau, que también estudió algún tiempo con la doctora Rhoda Benham en los laboratorios de micología del Colegio de Médicos y Cirujanos de la Universidad de Columbia, Dichas publicaciones contribuyeron notablemente a difundir los conocimientos y el interés médico de las levaduras en general en el canal intestinal del hombre.

Hoy día sabemos que esas levaduras son parte de la flora normal del intestino y que pueden multiplicarse y poblarlo en menor o mayor grado dependiendo de la dieta (6) o de la presencia o ausencia de otros microorganismos, tales como las bacterias entéricas, con las cuales compiten en su ecología. Su poder invasivo, sin embargo, no parece depender directamente de su abundancia, sino más bien de la debilidad inmunológica ya sea de la pared intestinal o de otros órganos, o bien del estado general del huésped como explicaré más tarde.

Algunas de estas condiciones predisponentes fueron advertidas por el doctor Ashford en sus últimas publicaciones en las cuales llegó a admitir que la *Monilia psilosis* no era la causa principal del esprú. Es claro que habían surgido ya otras explicaciones sobre la etiología de esa enfermedad. A más de ésto Ashford aceptó (7) que el nombre de la *Monilia psilosis* debía cambiarse por el de *Cándida álbicans*, sinonimia que había quedado demostrada por la doctora Benham en su tesis doctoral (8).

Aparte de la identidad morfológica, fermentativa y antigénica entre la *Monilia psilosis* y la *Cándida álbicans*, Benham pudo demostrar que esta especie es la única de las llamadas *Monilias* médicas capaz de causar la muerte a conejos, al inyectárseles endovenosamente, si bien hoy sabemos que otras especies de *Cándida* pueden causarles lesiones, aunque no mortales, a esos animales (9). Benham estudió y definió también las características de otras cuatro *Cándidas* de importancia para el hombre. Entre esas se encuentra la *Cándida parapsilosis*, especie descubierta por Ashford y descrita por él en el 1928 (10) y que hoy se reconoce como la segunda en frecuencia entre las ocho *Cándidas* (Tabla I) capaces de causar lesiones en el hombre.

Aunque todas esas especies pueden coexistir ocasionalmente en la flora intestinal, su presencia y abundancia pueden ser afectadas por la dieta o medicamentos ingeridos por el paciente, y su poder invasivo, como el de la *C. álbicans*, es de carácter oportunista.

TABLA I: ESPECIES DE CANDIDA CAPACES DE CAUSAR LESIONES EN EL HOMBRE

Cándida álbicans	*Cándida krusei*
Cándida stellatoidea	*Cándida pseudotropicalis*
Cándida tropicalis	*Cándida guilliermondii*
Cándida parapsilosis	*Cándida lipolytica*

Del Departamento de Dermatología, Laboratorio de Micología, Colegio de Médicos y Cirujanos de la Universidad de Columbia, New York, N. Y.

Décima Conferencia en Memoria del Dr. Bailey K. Ashford dictada en la Escuela de Medicina de la Universidad de Puerto Rico, San Juan, P. R., diciembre 6, 1968.

Las lesiones producidas por las levaduras son bien conocidas por los médicos aquí presentes y por lo tanto no las describiré. Algunas de ellas se enumeran en el cuadro sinóptico adjunto (Tabla II).

TABLA II: TIPOS DE LESIONES CAUSADAS POR CANDIDAS

A. Externas: cutáneas o mucocutáneas
- *"Thrush" (sapo o máculas blancas bucales)*
- *"Perleche" (erosión de comisuras labiales)*
- *Intertrigo*
- *Paroniquia*
- *Prurito perianal o de la vulva*
- *Granulomas cutáneos*

B. Internas: por extensión directa
- *Vaginitis*
- *Vías urinarias*
- *Otitis externa*
- *Esofaguitis*
- *Broncomoniliasis*

C. Internas: por diseminación vascular
- *Endocarditis (con o sin previa bacteremia)*
- *Pulmonar*
- *De otras vísceras (generalizada)*
- *Del sistema nervioso central*

D. Alergias por Cándida

Teniendo la *Cándida álbicans* y sus siete compañeras de travesuras esa duplicidad de roles: saprofítico y patógeno, es necesario reconocer si el hongo está ejerciendo su acción patógena cuando estamos en presencia de una muestra clínica. Esto puede lograrse ya con relativa facilidad porque las *Cándidas* sólo forman filamentos en el cuerpo humano cuando están invadiendo los tejidos. De lo contrario sólo aparecen en su forma unicelular multiplicándose por gemación que es lo habitual en su vida saprofítica dentro y fuera del cuerpo humano (11).

Por este motivo es imprescindible el examinar sin demora bajo el microscopio cualquier muestra clínica de un enfermo con posible diagnóstico de candidiasis. Las muestras recogidas con mucha anticipación o en forma cumulativa como se hace a veces con la orina, el esputo y las heces fecales para otros estudios, son inservibles para el diagnóstico micológico de candidiasis y *deben rechazarse, ya que éstas pueden* dar lugar a una impresión errónea debido a la multiplicación rápida de la levadura en la muestra *in vitro* y a la pérdida, o adquisición, según el caso, de su forma filamentosa parasitaria. De ser imposible el examen microscópico inmediato, debe hacerse fijar en formalina al 10 porciento parte de la muestra fresca, conservando naturalmente otra parte sin fijar para ser utilizada en los cultivos. La muestra formalinizada sirve entonces para observar la morfología del hongo como aparecía en el momento de obtener la muestra.

Este dimorfismo no se había reconocido aún en la época de Ashford. Comienza pues a surgir la "*Cándida álbicans* de hoy".

La necesidad de evaluar el rol saprofítico o patógeno de una superabundancia de levaduras en determinado paciente existía ya sin embargo en aquella época. Ashford mismo observó el aumento considerable de levaduras en las llamadas diarreas blancas y espumosas de sus enfermos de esprú. Señaló además que este aumento podía ser precipitado dramáticamente por un desorden alimenticio tal como la ingestión de gran cantidad de bizcochos, "palitos de Jacob" y otras reposterías en una fiesta de cumpleaños o en una visita a la "Bomboñera" al salir del trabajo.

Otro aumento también dramático en el número de levaduras gastrointestinales ocurre al ingerir antibióticos de amplio espectro o sulfonamidas, llegando o no a producir lesiones moniliásicas. Estas pueden ser de carácter transitorio, duradero, y aún mortales (12). Entre estas se encuentran las moniliasis bucales (*thrush*), lesiones perianales, con o sin invasión de los conductos genito-urinarios, ulceraciones esofágicas y finalmente la extensión por vía sanguínea a otras vísceras y particularmente al corazón y al sistema nervioso central.

Los primeros antibióticos que dieron lugar a estas complicaciones fueron la Aureomicina, la Terramicina y otras tetraciclinas. Al principio se creía que dichos antibióticos podían estimular directamente el crecimiento de las levaduras (13), mas esta teoría fue refutada con pruebas (14). Luego se pensó que la moniliasis se producía cuando el canal intestinal quedaba libre de la flora bacteriana dando lugar a un crecimiento excesivo de las levaduras. "Una vez aumentaba el número de éstas", se decía, "sucumbían las defensas del huésped". Esta otra teoría también ha sido descartada, gracias a observaciones clínicas y experimentales. Los clínicos pudieron darse cuenta de que muchos enfermos recibiendo al igual que otros tratamiento prolongado con antibióticos, no sucumbían a la moniliasis clínica, mientras que otros sí. Empezó a pensarse que la resistencia o defensas

inmunológicas podían afectarse por motivos no debidos directamente a la preponderancia de las levaduras. Utilizando animales asépticos ("germ-free animals") y cultivos de células humanas pudo demostrarse que los antibióticos, como los esteroides, inhiben la fagocitosis (15) y también la síntesis de gamma globulinas por las células de la pared intestinal. Naturalmente que estos experimentos fueron también inspirados por la observación de que los esteroides, los análogos del ácido fólico y otras substancias immuno-deprimentes como los compuestos nitrogenados mutagénicos ("nitrogen mustards") usados en el tratamiento del pénfigo y de la leucemia, también resultan en un crecimiento excesivo de *cándidas* con o sin producción de lesiones (16).

Ultimamente se ha descubierto en ciertos niños una deficiencia en la capacidad de los neutrófilos para digerir las partículas fagocitadas (17). Este fenómeno llamado "impotent neutrophil syndrome" puede reconocerse mediante una prueba de laboratorio (18). Es muy posible que esta deficiencia digestiva fagocitaria, innata o adquirida por el efecto de drogas, pueda explicar la mayor susceptibilidad de determinado niño o adulto para la infección por *Cándida.* Como es bien sabido, la *Cándida álbicans* puede germinar desde el interior de un fagocito y producir filamentos invasivos (19).

Resumen

Con sus estudios y publicaciones sobre la posible relación entre la *Monilia psilosis (Cándida álbicans)* y la etiología del esprú, Ashford interesó a muchos clínicos e investigadores a través del mundo en las levaduras encontradas en el intestino humano. Hoy se sabe que allí forman parte de la microflora normal pero que al disminuir las defensas del huésped pueden convertirse en patógenas dando entonces lugar a lesiones (candidiasis) que varían de localizadas y benignas a diseminadas y mortales.

La conversión de una *Cándida* de saprofita a patógena se ha atribuído en el pasado a cambios en la dieta, a deficiencias metabólicas del paciente, a la acción antibacteriana de las sulfonamidas y de los antibióticos de amplio espectro, y más recientemente, a la acción immunodeprimente de los esteroides, análogos del ácido fólico, compuestos nitrogenados mutagénicos, y aun de los mismos antibióticos.

Ya que en determinada muestra clínica una abundancia de levaduras puede deberse a su multiplicación rápida por gemación, lo mismo en el cuerpo humano que en el recipiente donde se recogió la muestra, esta debe ser fresca y examinada sin demora bajo el microscopio. De no poder llevarse con rapidez al laboratorio, debe hacerse fijar parte de la muestra en formalina para conservar la morfología del parásito como aparecía en el momento de recogerla. Si se observan hifas o pseudo-hifas puede deducirse que la *Cándida* está ejerciendo su acción patógena, ya que estas levaduras sólo producen filamentos *in vivo* cuando están invadiendo los tejidos. Pueden entonces germinar y salirse del interior de un fagocito, particularmente si éste es defectuoso en su metabolismo ya sea por razones innatas, o inducidas por el tratamiento que haya recibido el paciente.

Se enumeran las formas clínicas de la candidiasis y las ocho Cándidas que pueden causarlas.

Summary

With his studies and publications on the possible relation of *Monilia psilosis (Cándida álbicans)* to the etiology of sprue, Ashford aroused the interest of clinicians and investigators around the world in the yeasts that occur in the human intestine.

It is now accepted that such yeasts are part of the normal microflora, but become pathogenic upon lowering of the host defenses, then producing lesions (candidiasis) that range from localized and benign, to disseminated and fatal.

The conversion of a *Cándida* from saprophyte to pathogen has been explained in the past as due to changes in the patient's diet, metabolic deficiencies of the host, antibacterial action of sulfonamides and broad-spectrum antibiotics, and, more recently, immunodepression by steroids, folic analogs, nitrogen mustards, and even by the antibiotics themselves.

Since an abundance of budding yeasts in a given clinical specimen can be due to its rapid multiplication either in the host or in the container where the specimen was collected, the specimen must be fresh and examined microscopically without delay. When this is impractical, part of the specimen should be fixed in formalin to preserve the morphology of the fungus as it appeared at the time of collection. If hyphae or pseudophyphae are observed, it can be assumed that the *Cándida* is acting as a pathogen, since these yeasts form filaments *in vivo* only when they are invading tissues. They are able to germinate and escape from the interior of a phagocyte, especially if the phagocyte has a defective metabolism, for innate reasons or induced through drug administration.

The clinical types of candidiasis are outlined and a list is given of the eight potentially pathogenic Cándidas.

References

1. *Ashford, B. K.:* A monilia found in certain cases of sprue; preliminary note. J. Am. M. Ass., Chicago, 64: 810, 1915.
2. *Ashford, B. K.:* Relation of *Monilia psilosis* to tropical sprue and evaluation of fermentation of sugar as criterion for specificity. Porto Rico J. Pub. Health & Trop. Med., 6: 310-333, 1931.
3. *Carrión, A. L.:* Ashford, hombre de múltiples facetas; sus aficiones micológicas. Bol. Asoc. Méd. de Puerto Rico, San Juan, P. R., 52: 402-405, 1960.
4. *Ashford, B. K.:* Is sprue a moniliasis of the digestive tract? Am. J. Trop. Dis., N. Orl., 3: 32-46, 1915-1916.
5. *Ashford, B. K.:* Observations on the conception that sprue is a mycosis superimposed upon a state of deficiency in certain essential food elements. Am. J. Trop. Med., Balt., 2: 139-150, 1922.
6. *Rimbaud, P., H. Harant, J. A. Rioux et J. Caron:* Etude du pouvoir antifongique de la dichloroxyquinaldine dans la candidose digestive experimentale. In: Mycologie Medicale, L'Expansion Scientifique Francaise, Paris, 1958, pp. 332-338.
7. *Ashford, B. K.:* Limitations of sugar fermentations in establishment of species of *Monilia* and application of simplified nomenclature in medical literature. Puerto Rico J. Pub. Health & Trop. Med., 8: 7-30, 1932.
8. *Benham, R. W.:* Certain monilias parasitic on man. Their identification by morphology and by agglutination. J. Infect. Dis., 49: 183-215, 1931.
9. *Hurley, Rosalinde:* Pathogenicity of the genus Cándida. Chapter in Winner and Hurley's "Symposium on Cándida infections". E. & S. Livingstone, Ltd., London, 1966, pp. 13-25.
10. *Ashford, B. K.:* Certain conditions of the gastro-intestinal tract in Porto Rico and their relation to tropical sprue. Am. J. Trop. Med., 8: 507-38, 1928.
11. *Rogers, K. B.:* An aid to the differentiation between cases of moniliasis and monilia carriers. J. Clin. Path., 10: 406, 1957.
12. *Brown, C.:* (Editorial) Fatal fungus infections complicating antibiotic therapy. J. A. M. A., 152; 206, 1953.
13. *Pappenfort, R. B. and Schnall, E. S.:* Moniliasis in patients treated with Aureomycin. A. M. A. Arch. Int. Med., 88: 729-735, 1951.
14. *Lipnik, M. J., Kligman, A. M. and Strauss, R.:* Antibiotics and fungous infections. J. Invest. Derm., 18: 247-260, 1952.
15. *Balish, E. and Phillips, A. W.:* Growth, morphogenesis and virulence of Cándida álbicans after oral inoculation in the germ-free and conventional chick. J. Bacteriol., 91: 1736, 1966.
16. *Seelig, M. S.:* Mechanisms by which antibiotics increase the incidence and severity of candidiasis and after the immunological defenses. Bact. Rev., 30: 442-459, 1966.
17. *Holmes, B., Page, A. R. and Good, R. A.:* Studies of metabolic activity of leukocytes from patients with genetic abnormality of phagocytic function. J. Clin. Invest., 46: 1422-32, 1967.
18. *Bachner, R. L. and Nalban, D. G.:* Quantitative nitroblue tetrazolium test in chronic granulomatous disease. New Eng. J. Med., 278: 971-6, 1968.
19. *Louria, D. B. and Brayton, R. G.:* Behavior of Cándida cells within leukocytes. Proc. Soc. Expt. Biol. Med., 115: 93, 1964.

AUDIOMETRIC PATTERNS IN EAR DISEASE

Alexis O. Fernández, MD, MSc.

During the last decade the science of audiology has certainly come into its own, not just as a research tool or group of esoteric diagnostic tests, but as a powerful guide helping otologists unravel the mysteries of hearing. It is common practice for otolaryngologists – indeed, it is the rule – to have audiometric testing equipment in the office as an invaluable aid not only in the diagnosis but also in the prevention and treatment of ear disease. Because of the rapidly spreading use of audiometric testing by otologists, audiologists and other paramedical personnel it is of the utmost importance that the average physician have at least a working knowledge of audiometric tests and the interpretation of results. It is with the purpose of familiarizing physicians with these concepts that this paper is written.

The discussion to follow will not make the reader an expert in audiology, but it is sincerely hoped that it will be helpful as a guide in interpreting the results of audiometric tests. Thus, a more scientific approach to the diagnosis and treatment of the hard of hearing will ensue. With the new surgical techniques which have been developed in recent years, as well as new methods of medical treatment, the hard of hearing can be more fully rehabilitated. It is primarily the physician's responsibility in orienting these patients, so that they may obtain the best treatment available.

The normal audiogram: It is, of course, essential that a complete understanding of the normal audiogram be obtained before one may interpret the abnormal ones. The pure tone audiogram (Fig. 1) is essentially a graph on which are plotted the loss in decibels (db) as the abscissa and the frequencies in cycles per second (cps) on the ordinate. The symbols used are an "0" for air conduction in the right ear and an "X" for air conduction in the left ear. A bracket opening to the right (⟦) is the symbol for bone conduction in the right ear, whereas a bracket opening to the left (⟧) indicates bone conduction in the left ear. Incidentally, bone conduction for the purposes of this discussion may be interpreted as being synonymous with the status of the nerve of hearing. When colors are used, the symbols are red for the right ear and blue for the left. Thus, to do a pure tone audiogram the patient is presented with single frequencies, and the lowest intensity at which he hears the sound stimulus is plotted on the graph under the frequency being tested.

It is obvious that a complete audiogram should be more than just a pure tone analysis. Our normal environment does not present us with just pure tones. Speech, for example, is a combination of frequencies at different levels of intensity. It is, therefore, very important – at times vital – that a speech audiogram be done before an accurate assessment of a patient's hearing can be made.

Most of the sounds made in talking are confined to the range of frequencies between 500 cps and 2000 cps, with the vowels being represented in the lower frequencies and the consonants in the higher frequencies. It is usual practice to average the loss in decibels in the speech frequencies (500 to 2000 cps) for this serves as a guide in determining the patient's ability to hear speech. When an audiogram is expressed in ASA (American Standards of Audio-

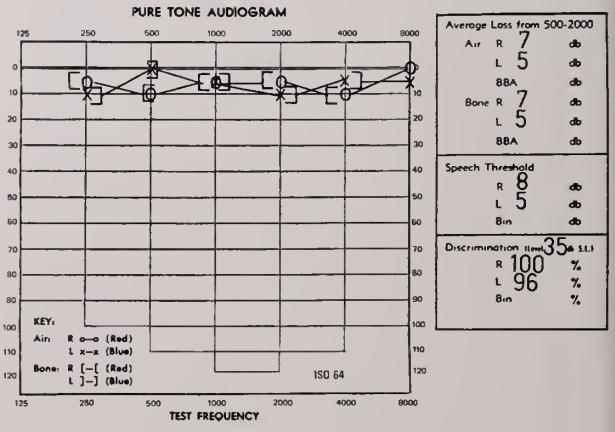


Fig. 1: *Normal audiogram.*

metry – 1951) one may consider normal hearing up to a loss of 15 db. When the International Standard (ISO - 1964) is used, up to a loss of 26 db may be considered normal (1). Both standards are used at the present time rather widely, and the differences between them for each particular frequency are readily available in other publications. However, for practical purposes one may consider that ISO values are in the range of 10 db more than ASA values.

The speech threshold (speech reception threshold or SRT) is indeed a very important determination. This value compares closely with the average loss for the speech frequencies in the pure tone audiogram. It is obtained by presenting the patient, through an audiometer, with a list of two-syllable words called spondees, both syllables being equally accented (*e.g.*, hotdog, airplane, railroad), and having the patient repeat them. The point at which the patient can repeat 50 percent of these words correctly is taken as the SRT. One may consider a loss of up to 15 db in ASA rating and up to 26 db in ISO as within normal limits. Furthermore, a person with a loss of over 30 db (ASA) or 40 db (ISO) in SRT will have enough difficulty in hearing and understanding speech that amplification is usually recommended (1). In general, using ISO ratings, a loss of hearing from 27 to 40 db is considered slight, from 41 to 70 db moderate, 71 to 90 db severe and above this level, profound (1).

Discrimination scores must then be determined, for this represents the ability of the patient to understand what he hears. Thus, a patient may be able to hear words but may not necessarily be able to differentiate between words which sound alike. To obtain discrimination scores the patient is given a list of phonetically balanced (PB) words (*e.g.*, such, cane, strife) – words which represent a cross section of the sounds made in the spoken language – at a loudness level of 35 db above the SRT (this figure may vary but one must make sure the patient can hear the words adequately), and the percentage which the patient can repeat correctly is taken as the discrimination score. Above 90 percent may be considered normal.

Types of Hearing Loss: The two main types of hearing loss are the conductive and the perceptive or nerve-type. The latter is also known as sensori-neural. A third type, the mixed loss, is essentially a combination of the two main types.

A conductive hearing loss is one which affects the mechanism which transmits sound from the external to the inner ear. It may be due to impacted cerumen, a perforated tympanic membrane or otosclerosis, to name some of the most common. The sensori-neural or perceptive hearing loss is one which affects the inner ear – the cochlea and auditory nerve – or more rarely, higher neural centers. Presbycusis, or the hearing loss which occurs with aging, is probably the most common type. But there is also the nerve deafness secondary to ototoxic drugs, such as streptomycin and kanamycin, acoustic trauma, Meniere's disease and that of congenital origin.

Conductive Deafness: Serous otitis media is a very common type of conductive hearing loss, usually of a mild nature and seen mainly in children. In the audiogram (Fig. 2), one sees a normal bone conduction with the so-called "air-bone gap" in which air conduction is 10 to 15 db below the bone determination. The average loss in the speech frequencies compares with the SRT. As is typical of conductive hearing losses, discrimination is within normal limits (90 to 100 percent).

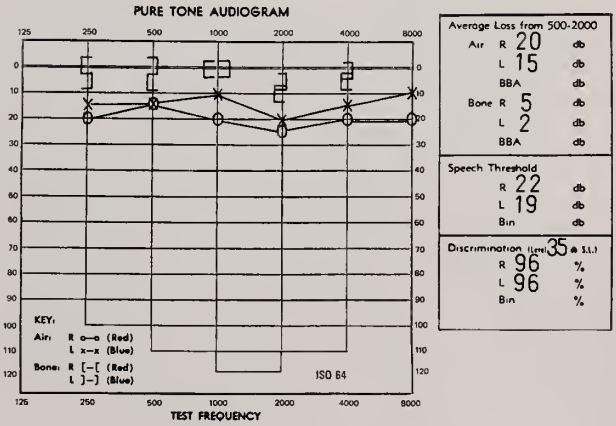


Fig. 2: *Serous Otitis Media.*

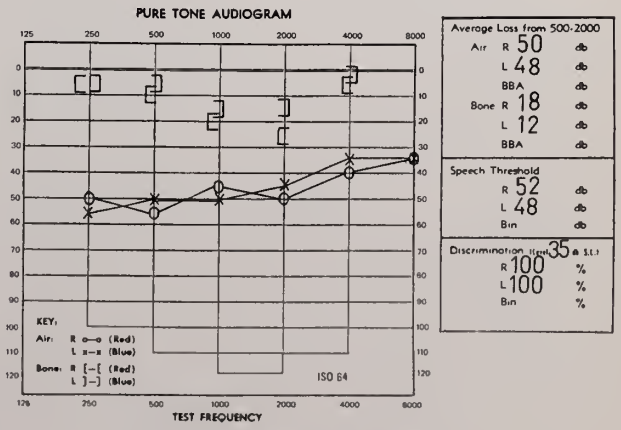


Fig. 3: *Otosclerosis.*

Otosclerosis, a disease causing progressive hearing loss, will give this type of audiogram (Fig. 3). The conductive loss is first evident in the low frequencies but later in the course of the disease all frequencies are affected. The bone conduction determinations show a dip in the 1000 and 2000 cps with recovery at 4000 cps. This is the so-called *Carhart notch* (2, 3), an artifact which disappears upon successful surgery. Notice again the correlation between the average loss in the speech frequencies and the SRT. The discrimination score is again normal.

Other types of pure conductive hearing losses will show essentially an audiogram with a normal bone curve and an air conduction curve running below the bone determination. This is the *air-bone gap*, and it may vary from very mild to a maximum conductive loss – about 70 db – as is seen in ossicular discontinuity secondary to trauma, infection or congenital anomaly.

Perceptive Deafness: Presbycusis will give this type (Fig. 4) of a sloping curve, affecting mainly the high frequencies. Because of the inbalance between the hearing levels of the low and the high frequencies, there will be a loss of understanding or discrimination. In this case, the score is 72 and 76 percent in the right and left ears respectively. Because this patient has an SRT of 43 db he would benefit from the use of amplification, such as with a hearing aid.

A peculiar, and fortunately not very common, type of perceptive deafness is presbycusis associated with *phonemic regression*. This audiogram (Fig. 5) is very similar to Figure 3 but the discrimination score is much lower. This patient will probably not benefit from amplification, since the ability to undertand is not usually improved to any great degree by increasing the intensity of the sound stimulus. Speech to this patient sounds as noise; if a hearing aid is fitted, speech will just sound as a louder noise.

Acoustic trauma or noise induced hearing loss will give an audiogram as shown in Figure 6 in early or mild cases. Here the loss is in the 2000 to 4000 cps

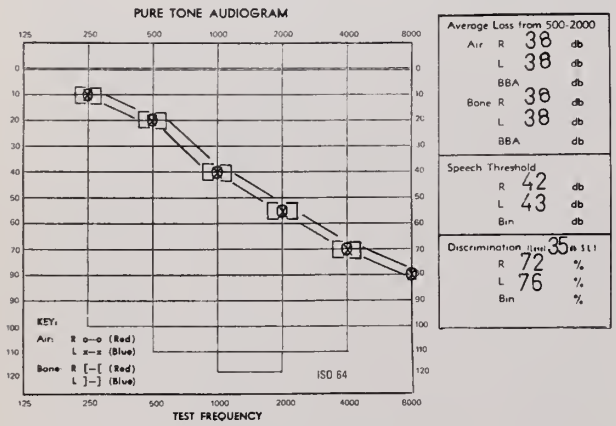


Fig. 4: *Presbycusis.*

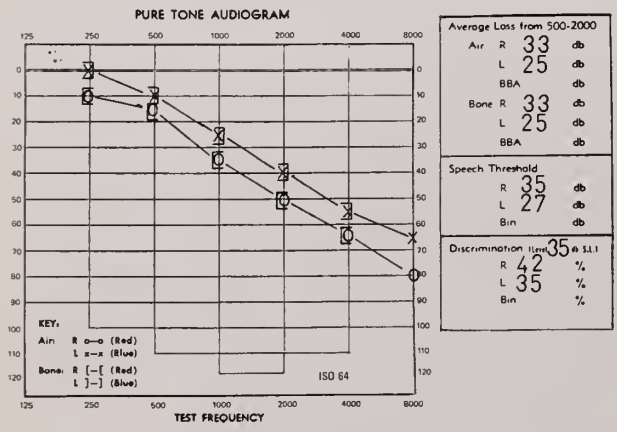


Fig. 5: *Presbycusis with Phonemic Regression.*

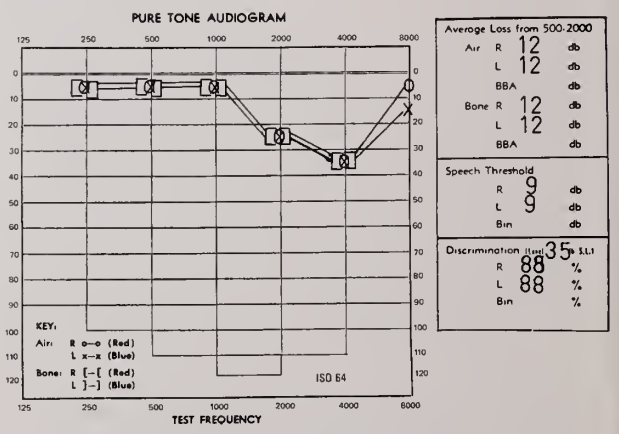


Fig. 6: *Acoustic trauma.*

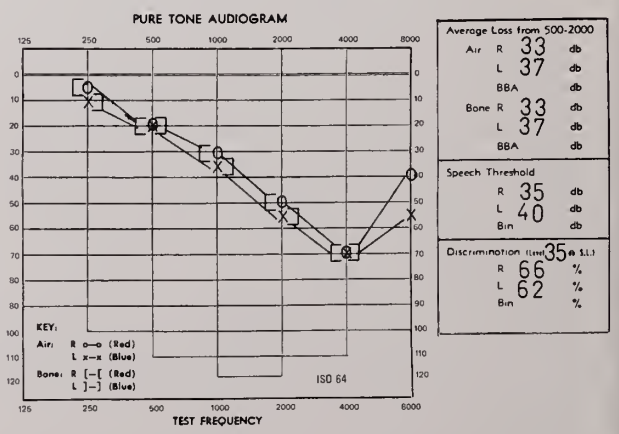


Fig. 7: *Acoustic trauma. Same patient as figure 6 but four years later.*

range with recovery at 8000 cps. Acoustic trauma refers to the loss caused by a sudden loud noise, such as an explosion or shot fired close to the ear. Noise induced hearing loss refers more to hearing loss secondary to exposure to loud sound levels over a prolonged period of time. This particular audiogram belongs to a patient who worked in a machine shop and was exposed to loud noise levels. Notice that discrimination has suffered only slightly.

Four years later, the same patient as in Figure 6 had the audiogram in Figure 7. His hearing loss had increased considerably, as is evident from the pure tone audiogram and the SRT levels. His discrimination score has decreased markedly. It is very important for people exposed to high intensity sounds or prolonged periods to protect their ears. This type of hearing loss is preventable.

A bilateral profound sensori-neural hearing loss is represented in Figure 8. SRT levels show the severe loss of hearing. This audiogram was that of a four

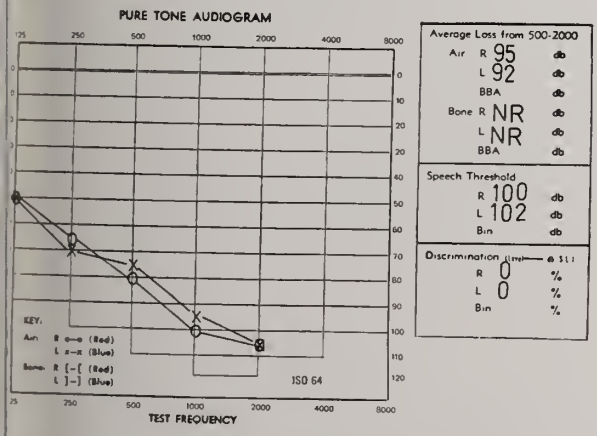
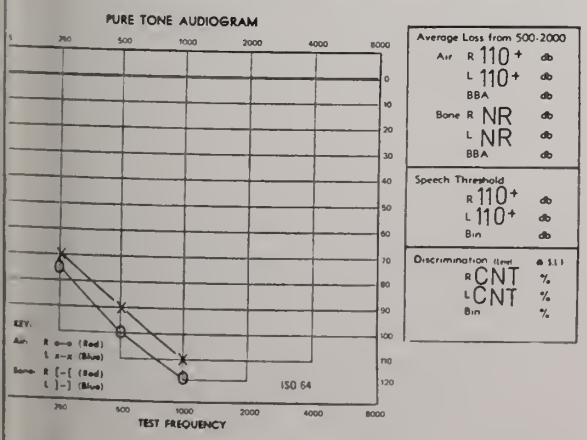


Fig. 8: *Bilateral profound sensori-neural hearing loss.*



g. 9: *Bilateral profound sensori-neural hearing loss.*

year old child whose mother had had *rubella* during the first trimester of pregnancy. Discrimination is 0 percent.

A profound hearing loss is depicted in Figure 9 in a one year old with a *congenital hearing loss.*

A unilateral, profound, sensori-neural hearing loss is seen in the audiogram (Fig. 10) of a child after *mumps.* Mumps is the most common cause of a unilateral hearing loss of this type, but other viral infections may give the same picture.

Meniere's disease will typically give a flat sensori-neural hearing loss such as is seen in Figure 11. At the onset of this disease the low frequencies are usually affected and the hearing loss is fluctuating, with even normal hearing between episodes of vertigo. As the disease progresses, however, the hearing loss is permanent and the typical audiogram will be seen. Discrimination scores are markedly affected in the ear exhibiting the disease. In this patient, it is 65 percent in the left ear.

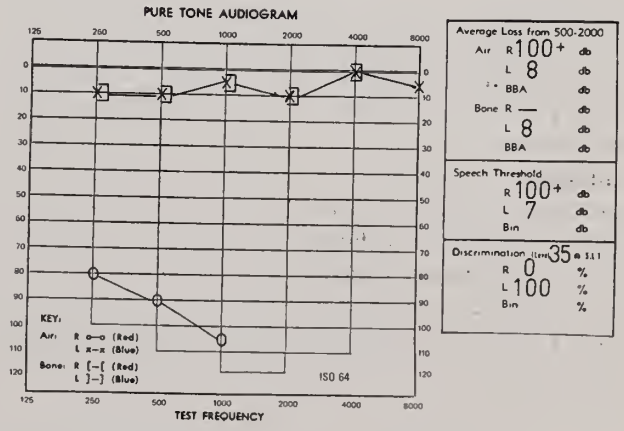


Fig. 10: *Profound sensori-neural hearing loss secondary to mumps.*

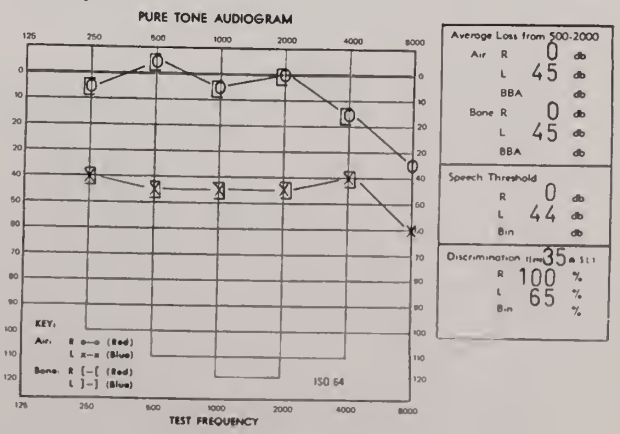


Fig. 11: *Meniere's Disease.*

Figure 12 shows a right unilateral, sensori-neural, high frequency hearing loss with a 0 percent discrimination score. This patient had a *cerebello-pontine angle tumor*, later excised successfully. An audiogram such as this should immediately suggest the possibility of an angle tumor. It is often the alert otologist who will diagnose early angle tumors, since otologic signs and symptoms frequently occur very early in the disease. After an audiogram such as this other confirming tests must be carried out, but these are beyond the scope of this paper.

Mixed Deafness: The audiogram in Figure 13 is presented to show that not everybody with a conductive component should undergo corrective surgery. In this particular instance, the audiogram shows a mixed hearing loss composed of a sloping bone conduction curve affecting mainly the high frequencies. The conductive component, due to stapes fixation because of *otosclerosis*, is clearly evident. Discrimination is affected because of the sensori-neural component.

Figure 14 shows the audiogram of the same patient as in Figure 13 but the audiogram is the post-operative analysis. The right ear was operated on and a closure of the air-bone gap obtained. However, there has been a marked drop in discrimination from 86 percent to 44 percent. Although the pure tone audiogram shows what seems to be an excellent post-operative result, such is not the case when one examines the speech audiogram. If one can predict that a loss in discrimination will occur as a result of surgery, the benefits derived from a closure, or even a decrease in the air-bone gap, must be weighed against such a loss in discrimination before surgery is recommended.

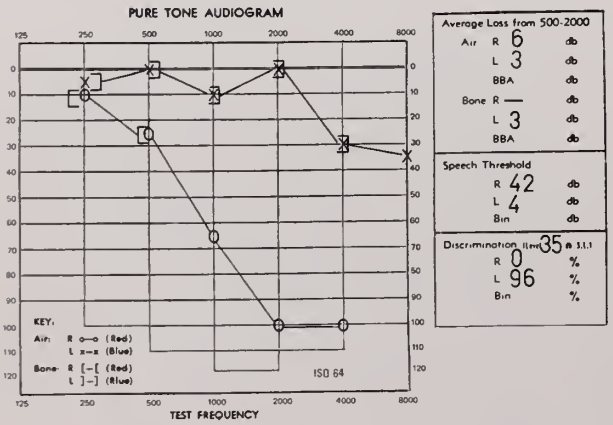


Fig. 12: *Right cerebello-pontine angle tumor.*

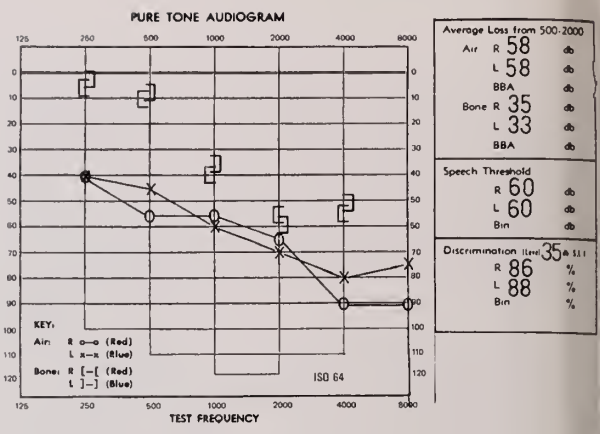


Fig. 13: *Mixed Deafness.*

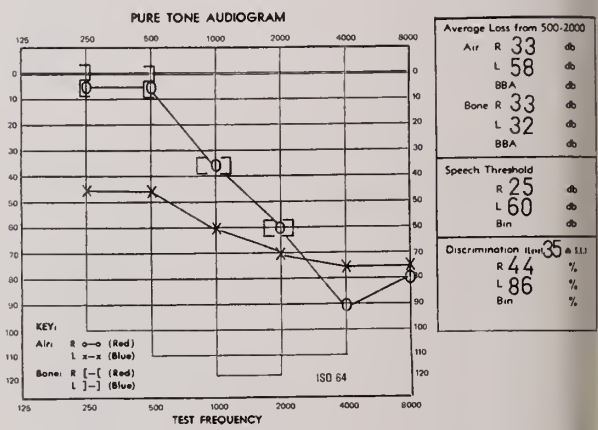


Fig. 14: *Post-operative result in mixed deafness.*

Summary

In an effort to give physicians in fields other than otology a working knowledge of audiograms, the normal audiogram has been discussed and a series of pathological patterns presented. It is sincerely hoped that even with this superficial discussion a better understanding of hearing loss will be brought about.

Resumen

Con el propósito de familiarizar a médicos cuyas prácticas de medicina no están directamente relacionadas con los problemas de audición con las pruebas audiométricas generalmente usadas, se presenta una serie de audiogramas que representan diversas condiciones patológicas que causan diferentes grados de pérdida de audición.

References

1. *Goodman, A. C.:* Reference zero levels for pure tone audiometers. Maico Audiological Library Series, IV: 7, 1966.
2. *Rosenberg, P. E.:* Pure tone audiometry. Maico Audiological Library Series, I: 1, 1964.
3. *Portmann, M. and Portmann, C.:* Clinical Audiometry, Charles C. Thomas, Springfield, 1961, p. 197.

CONVENCION SEMI – ANUAL AMPR

JULIO 4 – 6, 1969 ---------- HOTEL PALMARINAS ---------- ISABELA, PUERTO RICO

CASE REPORT

CALCIFICATIONS IN CARCINOMA OF THE PANCREAS

Bernardo J. Marques, MD
Laszlo Ehrlich, MD, FACP, FACR

Whereas in the past the presence of pancreatic calcification in a patient exhibiting clinical evidence of pancreatic disease had been considered the trademark of a benign inflammatory condition, several authors have recently published data implying a direct relationship between carcinoma of the pancreas and calcification in this organ (1, 4, 7): Most of the reviewed papers establish percentile relationship between these two entities; however, to the best of our knowledge, in the English language literature, the character and description of the calcifications has not been detailed. The purpose of this report is to present a most unusual case of pancreatic duct-cell carcinoma demonstrating large, irregular calcifications, to show their radiologic appearance, and to bring to the attention of the reader a word of caution prior to his discarding the possibility of pancreatic malignancy in the presence of calcifications within this organ.

Case Report

A 34-year old white male credit investigator was first admitted to San Juan Veterans Administration Hospital on November 12, 1967 with a two months history of progressive mid-back pain against a background of excellent health. The pain was not affected by meals, but was partially relieved when the patient bent forwards and pressed on his abdomen. During the present illness the patient lost 24 pounds without nausea, vomiting or diarrhea. In the two weeks preceding the admission the pain radiated anteriorly under xyphoid process and frequent use of demerol and morphine was necessary to relieve it.

The past history was essentially negative, the patient denying significant alcohol intake, previous episode of abdominal or back pain, knowledge of diabetes or jaundice. The family history was negative for diabetes or gastrointestinal disease. The review of systems was essentially negative, save for polyuria of several days duration.

Physical examination revealed a very thin, acutely and chronically ill-appearing male, complaining of severe upper abdominal pain. All vital signs were within normal limits. There was no jaundice. The upper abdomen and in particular, the epigastric area was moderately tender but no mass or organ was palpable.

Complete blood count, serum glutamic-oxalacetic transaminase, urinalysis, bilirubin, bromsulfophthalein retention, electrolytes, calcium and phosphorus, were all normal in multiple determinations. The fasting blood sugar was persistently elevated and a glucose tolerance test showed a diabetic pattern. The serum amylase was consistently low (22-29 Somogyi units).

Admission chest film was negative. Gall-bladder series showed a normal gall bladder. On this study extensive calcification in the region of the pancreas was noted (Fig. 1). An upper gastrointestinal series revealed posterior indentation of the stomach by a mass in the pancreatic bed which showed multiple, rather large, irregular, elongated calcific densities (Figures 2 and 3).



Fig. 1: *Oral cholecystogram: Normal gall bladder and extensive calcification in the region of the pancreas.*

From the Department of Radiology, Veterans Administration Hospital, San Juan, Puerto Rico.



Fig. 2: *Upper G. I. study, air contrast view: The calcifications are clearly seen in the duodenal loop.*



Fig. 3: *Erect view of the same study: Extrinsic pressure on the posterior wall of the stomach along the lesser curvature aspect (arrow).*

The pain became increasingly worse and the patient continued to lose weight rapidly. On November 28, 1967 he underwent an exploratory laparotomy and an approximately 80 percent distal pancreatectomy was performed (Fig. 4). The pathologic examination of the resected pancreas showed large calculi within dilated pancreatic ducts that microscopically exhibited extensive duct-cell carcinoma (Fig. 5). Subsequent to surgery the patient continued to exhibit marked pain, and weight loss. His diabetes was easily controlled but on January 29, 1968 the patient died of massive pulmonary embolization, a common complication of the hypercoagulability state often associated to pancreatic carcinoma.

Autopsy revealed local extension of the pancreatic lesion but no evidence of metastasis.



Fig. 4: *X-ray of the removed pancreas with the sharply outlined calcifications. Attached to the pancreas is the spleen.*



Fig. 5: *Section of pancreas depicts focus of duct cell carcinoma (H & E, X).*

Discussion

Pancreatic carcinoma accounts for 1.7 to 2 percent of all malignant tumors (2). The incidence of calcium deposition in the pancreas in chronic pancreatitis is estimated to be about 30 percent (3). The majority of these calcifications are considered true calculi as even the so-called parenchymal calcifications are actually calculi in the finer radicles of the pancreatic ducts (3, 6). The precise mechanism of their production is not established although it is generally accepted that they most commonly occur in chronic relapsing pancreatitis particularly in the presence of an alcoholic background (4, 6, 8). In some instances the calcifications have appeared within one year after the onset of pain while in other cases they have appeared after 10 or 20 years of symptoms or even in the absence of symptoms (3).

Attention to the coexistence of pancreatic calcification and carcinoma was brought about by the report of four such cases by Bartholomew in 1958 (1). Subsequent papers in 1960 reported a 9.4 percent coexistence in 32 cases (4) and 25 percent coexistence in 24 cases (7). Johnson and Zintel in 1963 studied extensively the relationship of carcinoma of the pancreas and calcification in this organ. In their series of 113 carcinoma of the pancreas, there was not a single case of documented chronic pancreatitis and none of them showed calcification. In the same report 64 patients with confirmed diagnosis of chronic pancreatitis, not a single case was associated with pancreatic carcinoma. Of this latter group 71 percent had an alcoholic background. According to this report, there is striking lack of relationship between pancreatic lithiasis and pancreatic carcinoma. The very same authors, however, after having reviewed the English literature from 1925 to 1962, have found 653 cases of pancreatic lithiasis with 3.7 percent simultaneously occurring pancreatic carcinomas which they consider higher than expected in the general population.

In their smaller series (24 cases) Paulino-Netto reports on 6 cases of coexisting pancreatic lithiasis and carcinoma (7). It is most interesting to note that none of these 6 patients had a history of alcoholism.

To further confuse this controversial subject, a case has been reported of an alcoholic patient whose pancreatic calcifications related to his well documented chronic pancreatitis, partially vanished upon the development of a carcinoma of this organ (8).

Our case presented a rather typical clinical course of pancreatic carcinoma, however, it was most unusual to see this malignancy in such a young man with no history of alcoholism or pancreatitis (similar to Paulino-Netto's cases except for the age). The extent of the calcifications with such a short symptomatic history of only two months is indeed remarkable. These calcifications are unusually sharply outlined and large, assuming partly the shape of the dilated pancreatic ducts (Fig. 4). Slight blurring of the calcifications in-vivo is most likely secondary to the transmitted pulsations of the adjacent aorta.

Even though the presence of chronic pancreatitis with coexistent calcifications appears to be etiologically related to the development of pancreatic carcinoma in a small number of cases (7), our case and those of Paulino-Netto with a negative alcoholic history and no evidence of previous pancreatitis, make us believe that the presence of large, irregular pancreatic lithiasis under these circumstances must raise strongly the suspicion of malignancy. In these cases it would be impossible to determine which came first, the duct-cell carcinoma or the lithiasis.

Summary

An unusual case of pancreatic lithiasis co-existing with pancreatic carcinoma has been added to the literature. In our review of the literature on this subject and the evaluation of our case, we conclude that the index of suspicion of malignancy should be very high when large irregular pancreatic calcifications are noted in a patient with no clinical history or evidence of pancreatitis or chronic alcoholism.

Resumen

Se informa un caso de litiasis pancreática asociado a un carcinoma del mismo órgano. Estudio de la literatura sugiere que en la presencia de calcificaciones grandes e irregulares en el pancreas, en ausencia de un historial u otra evidencia de pancreatitis u alcoholismo crónico, debe sospecharse la posibilidad de carcinoma.

Acknowledgment

We would like to acknowledge the cooperation of the Surgical and Pathology Departments of the San Juan Veterans Administration Hospital for their participation in the treatment and diagnosis of this patient and their communications with our department in reference to this case.

References

1. *Bartolomew, L. G., Gross, J. B. and Comfort, M. W.:* Carcinoma of the pancreas associated with chronic relapsing pancreatitis, Gastroenterology 35: 473, 1958.
2. *Bockus, H. L.:* Gastroenterology, Vol. 3, W. B. Saunders Co. 1964.
3. *Donner, M. W. and Weiner, S.:* Diagnostic evaluation of abdominal calcifications in acute abdominal disorders, Radiol. Clin. North America 2: 152, 1964.
4. *Johnson, J. R. and Zintel, H. A.:* Pancreatic calcification and carcinoma of the pancreas, Surg., Gynec. & Obst. 117: 585, 1963.
5. *Mani, J. R., Zboralske, F. F., and Margulis, A. R.:* Carcinoma of body and tail of pancreas, Am. J. Roentgenol. 96: 429, 1966.
6. *McGeorge, Ch. K., Widmann, B. P., Ostrum, H., and Miller, R. F.:* Diffuse calcification of the Pancreas, Am. J. Roentgenol. 78: 599, 1957.
7. *Paulino-Netto, A., Dreiling, D. A., Brinoesky, I. D.:* The relationship between pancreatic calcification and carcinoma of the pancreas, Ann. Surg. 151: 530, 1960.
8. *Tucker, D. H. and Moore, I. B.:* Vanishing pancreatic calcification in chronic pancreatitis: Sign of pancreatic carcinoma, New England J. Med. 268: 31, 1963.

CARTA

A study of 559 cases of acute myocardial infarction seen in a ten year period (1956-1965) was reported by us (1) in the November 1967 issue of the Boletín. This review, which included 311 service and 248 private patients, revealed a significantly higher death rate among the former (30.5 percent) than in the private cases (19.3 percent). This finding is similar to that of other reports (2, 3). In the analysis of the two groups, it was found that there was a greater delay in the admission of service patients, that they suffered more often from combined anterior and posterior injuries, had more serious arrythmias and conduction abnormalities, developed heart failure more frequently and had a greater incidence of associated debilitating diseases. Another important reason for the better survival of private patients was believed to be the frequent use of special nurses in the first week after the coronary occlusion.

In the last two years we have developed facilities for continuous monitoring of acute myocardial infarction and have trained our nurses in the intensive care of the cardiac patient, the use of electronic equipment, including defibrillation, cardiopulmonary resuscitation, and electrocardiographic recognition of arrythmias and conduction abnormalities. As is apparent from Table I, we have had a gratifying improvement in the survival rate.

TABLE I: DEATH RATE IN ACUTE MYOCARDIAL INFARCTION AT PONCE DISTRICT HOSPITAL

	Cases	Deaths	Death Rate
	1956 ---- 1966		
Males	228	58	25.4
Females	117	47	40.1
Totals	345	105	30.4
	1967 ---- July 1968		
Males	45	8	17.8
Females	22	3	13.6
Totals	67	11	16.4

This reduction in mortality of acute myocardial infarction is similar to that of other institutions, not only teaching centers (4, 5) but also nonteaching community hospitals (6). These results favor the present trend of developing such continuous care units in most hospitals, if the required equipment and, most important of all, trained nursing personnel is available.

Our observations would also seem to indicate that the various factors offered by us in our previous communication and enumerated above to explain the higher mortality in service patients, played, if any, a minor role. It is more likely that our previous lack of monitoring equipment and meticulous nursing care by trained personnel was the main factor involved.

Héctor F. Rodríguez, MD, FACP

References

1. *Rodríguez, H. F., Cintrón, E., Pérez Arzola, M. and Master, K.:* Acute myocardial infarction: Clinical review of 550 cases in southern Puerto Rico. Bol. Asoc. Méd. P. Rico 59: 461, 1967.
2. *Griffith, G. C., Leak, D., Balkishna, H.:* Conservative anticoagulant therapy of acute myocardial infarction. Ann. Intern. Med. 57: 254, 1962.
3. *Malach, M. and Rosenber, B. A.:* Acute myocardial infarction in a city hospital. Amer. J. Cardiol. 1: 682, 1958.
4. *Day, H. W.:* Acute coronary care - A five year report. Amer. J. Cardiol. 21: 252, 1968.
5. *Lown, B., Fakhro, A. M., Hood, W. and Thorn, G. W.:* The coronary care unit. JAMA 199: 188, 1967.
6. *Langhorne, W. H.:* The coronary care unit. A year's experience in a community hospital, JAMA 201: 92, 1967.

ACTUALIDADES MEDICAS

Iron Requirements in Children

Providing iron-fortified dietary staples such as milk, cereal, bread, grits or rice to children after six weeks of age is the most effective way to prevent iron deficiency on a large scale in infancy according to the American Academy of Pediatrics.

The AAP's Committee on Nutrition, in a statement appearing in the January issue of *Pediatrics* further recommends that the diet of normal weight infants should provide 1.0 milligram per kilogram of body weight of iron each day by three months of age to a maximum intake of 15 milligrams each day to provide sufficient iron to maintain normal hemoglobin values.

"This requirement can be easily met," the statement points out, "by inclusion in the diet of appropriate amounts of foods which have been enriched with iron, such as infant cereals or milk formulas."

The Academy statement further indicates that the presence of low birth weight or decreased hemoglobin level in the first few days of life may identify infants who will need special iron requirements during the first 18 months of their life.

Discussing iron content for these low birth weight infants, and others with reduced iron endowment, the Academy Committee recommends that as much as 2.0 milligrams of iron per kilogram per day be included in their diets beginning by two months of age.

"This amount of iron will not ordinarily be provided by the diet, even if iron-supplemented cereals are given," the Academy emphasizes. "Attainment of these larger amounts requires the use of medicinal iron or iron-supplemented milk formula."

The Academy's Committee on Nutrition recommends that medicinal iron be continued for a month or so after normal hemoglobin levels have been attained to insure replacement of normal iron reserves.

Examining the reasons for variation in initial hemoglobin mass among infants which contribute to differences in body iron content, the Academy Committee says most evidence indicates that a mother's iron level has little effect on an infant's initial hemoglobin level.

"Multiparity, low socioeconomic status, and racial factors are commonly linked with a high incidence of iron deficiency anemia in the older infant," this statement points out.

"The frequent association of these situations with low birth weight and with an inadequate postnatal intake of iron, are probably far more important than any maternal effects on the infant's iron endowment."

In examining iron deficiency after infancy, the APP points to surveys from widely separated areas in the United States which indicate that severe nutritional anemia is not an important universal problem by four or six years of age, even in children from low socioeconomic backgrounds.

The statement goes on to point out that it therefore seems likely that, "except for anemias secondary to blood loss, symptomatic problems of iron nutrition in childhood are largely restricted to the first two years of life."

Concluding, the statement makes this point: "Attention should be directed to providing a variety of iron-enriched dietary staples to be used routinely for feeding American infants during the period of life from 3 to 18 months of age, and to more precisely determining the best form of iron supplementation."

"At the present time, iron fortified baby cereals and milk formulas are the iron supplemented foods most generally available. However, these are often not utilized by segments of the American population which have the greatest need for them."

From the American Academy of Pediatrics, News Release, Jan. 15/69; Newsletter Supplement, December 1, 1968.

Mumps Virus Vaccine

The Committee on Control of Infectious Diseases met in Chicago on October 20, 1968, and reexamined

its recommendations concerning the use of live, attenuated mumps vaccine (Academy *Newsletter* Supplement, Dec. 15, 1967), in the light of an additional year's experience with this antigen.

It is estimated that a million or more doses of mumps vaccine have been administered since licensure. Continuing surveillance of antibody titers in individuals immunized three or more years ago has shown persistence of significant antibody levels. No serious untoward reaction has been reported.

Recommendation Reaffirmed

The Committee reaffirms its recommendation that all males in preadolescent or older-age groups who have not experienced mumps be immunized with the live, attenuated vaccine.

Also, mumps vaccination might well be considered in closed population groups such as camps, special schools, and the like where an epidemic of mumps might interfere seriously with educational or other programs.

The additional evidence affirming the efficacy and safety of mumps vaccine strengthens the basis for its use in children older than one year.

However, in view of the usually benign nature of mumps, the Committee recommends that its use in such children be considered only when programs of higher priority such as measles immunization, tuberculin testing, and the like, will clearly not be compromised from the standpoints of logistics, personnel, or finances.

EDITORIAL

LA PREVENCION DE LOS ENVENENAMIENTOS ACCIDENTALES

La semana comprendida entre el 16 y 22 de marzo de este año, ha sido seleccionada por Proclama Presidencial como la Semana de la Prevención de los Envenenamientos Accidentales. El Gobernador de Puerto Rico, a través del Secretario de Salud, también ha proclamado dicha semana para alertar a la ciudadanía sobre los graves riesgos de los envenenamientos accidentales.

El envenenamiento es una experiencia aterradora y angustiosa que sólo puede evitarse por el esfuerzo común del ciudadano.

Ni aun en la Edad Media este problema era tan complicado como lo es en la actualidad. Los envenenamientos entonces se debieron a razones totalmente distintas a las nuestras.

Hoy día, los envenenamientos accidentales ocurren especialmente en los niños. A pesar de lo cruel que resultan, surgen con pasmosa frecuencia en nuestra comunidad puertorriqueña. Pero..... ¿cuál es la razón? ¿El crecimiento de nuestra población? ¿El sinnúmero de productos que hoy día tenemos a nuestra disposición para uso en el hogar? O tal vez se debe a una vida más cómoda, más descansada y ociosa producida por el uso de productos químicos, que por su naturaleza resultan peligrosos si no se usan bien? Los productos de jardinería, los yerbicidas, insecticidas, lustradores de muebles y metales, venenos para ratas, las drogas maravillosas, tales como: antibióticos y otros más; no sólo pueden ser peligrosos sino causar la muerte si se usan incorrectamente.

Todos los años, varios cientos de niños en Puerto Rico son llevados a los hospitales debido a que se han envenenado accidentalmente con algunos de estos productos que encontraron al alcance de su mano. Afortunadamente, la mayoría de estos niños sobreviven. Pero..... ¿cómo sobreviven? Algunos quedan con una enfermedad que les imposibilitará el ser útiles a la comunidad durante el resto de sus vidas; otros pueden quedar retardados mentalmente; algunos pueden quedar desfigurados.....

Hoy día los envenenamientos están causando más muertes entre los niños de 1 a 5 años de edad que la difteria, la poliomielitis, el sarampión, la tosferina, y otras enfermedades peligrosas que son comunes a este grupo de edad.

Celebramos la Semana de la Prevención de los Envenenamientos Accidentales durante los días 16 al 22 de marzo, para recordarle al público puertorriqueño los peligros del uso de estos productos e invitarles a investigar los sitios donde guardan éstos: el botiquín, debajo del fregadero, el garage, los gabinetes, la alacena, y otros lugares donde se guardan drogas, insecticidas, venenos, medicinas, cloro y otros productos que son peligrosos cuando están a la vista y al alcance de todos los niños, no importa sean hijos de médicos. Debemos guardar estos productos bajo llave, en sitios separados, lejos de los alimentos; además de asegurarnos de limpiar estos sitios a menudo y deshacernos de los que ya no usamos.

Es nuestro deseo alertar a los padres para que estén siempre atentos a eliminar el peligro de tener estos productos en el hogar a la vista y alcance de los niños. La mayoría de los envenenamientos ocurren en el hogar, precisamente mientras la madre o el padre están con los niños. Un pequeño descuido, un solo minuto basta para que se produzca la tragedia. Para evitar ésta le vamos a dar unas cuantas reglas que los ayudarán a reducir los envenenamientos accidentales en el hogar:

1. Tenga toda clase de medicinas, pesticidas, productos químicos, limpiadores, drogas, etc.

fuera de la vista y el alcance de los niños. Recuerde que ellos quieren todo lo que ven y cuando lo cogen se lo llevan a la boca.

2. *Coloque los alimentos en un sitio para guardar éstos solamente.*
3. *Mantenga los productos en sus envases originales.*
4. *Eche las medicinas que no use por el inodoro o lavamanos y enjuague el frasco antes de botarlo.*
5. *Nunca le llame dulces a las medicinas, especialmente a las aspirinas de colores con sabor agradable.*
6. *Lea siempre las etiquetas de los productos y medicinas antes de usarlos. Use sólo las dosis indicada.*

El hecho de que estas reglas le parezcan tontas o que piense que "esto no me puede ocurrir a mí" o "no va conmigo" hace esta publicación más necesaria aún.

Una vez ocurre un envenenamiento (a pesar de las medidas de prevención que hayan tomado) lo más importante es establecer un diagnóstico inmediatamente. Esto no es fácil en muchos casos. Es urgente saber los ingredientes tóxicos del producto, los que pueden o no estar indicados en la etiqueta.

Luego de atender la emergencia inmediata en lo relacionado a lo sintomático y al tratamiento de sostén, una relación de los hechos debe ser obtenido de la familia. La policía, la enfermera de salud pública o el sanitarista en el nivel local pueden ser de gran ayuda en este asunto.

Una relación de signos, síntomas, olores y otras huellas pueden ser de gran valor. Las siguientes observaciones, aunque no específicas, pueden ayudarle a determinar algunas posibilidades y a hacer un diagnóstico rápido:

Si el envenenado está en coma; considere los alcoholes, barbitúricos, bromuros, hipnóticos, antihistamínicos y otros depresores, etc.

En caso de convulsiones piense en la estrictina, el alcanfor, el fósforo orgánico, el grupo analéptico, etc.

Si hay dilatación de las pupilas; considere la belladona y su grupo, la epinefrina y su grupo, las anfetaminas, etc.

Cuando ocurre contricción de las pupilas; considere la morfina y su grupo, el paratión y su grupo, etc.

En caso de cianosis; los nitratos, cloruros, la anilina y sus derivados pueden ser la causa.

Si hay acidosis; considere el alcohol metílico, el salicilato y su grupo (aspirina), etc.

La taquicardia, bradicardia, respiración acelerada, respiración lenta, Cheyne-Stokes, perspiración, garganta seca, el daño hepático, daño al riñón, discrasias de la sangre, etc. pueden ser de ayuda en un diagnóstico. También el uso inmediato de pruebas sencillas de laboratorio para identificar la presencia de algunos de los venenos más comunes podrían ser de ayuda adicional.

Como al médico le es imposible estar familiarizado con los miles de posibles agentes tóxicos y/o sus ingredientes, nombres comerciales, sus posibles efectos en el ser humano, los signos, síntomas y el tratamiento adecuado para cada caso de envenenamiento se han establecido los Centros para el Control, Información y Tratamiento de Envenenamiento los que le serán de gran ayuda. Los mismos están localizados en los Hospitales de Distrito del Departamento de Salud para ayudar tanto al médico como al ciudadano particular cuando ocurra un accidente de esta naturaleza.

Estos Centros han comenzado en forma modesta, pero ya se están expandiendo de acuerdo a las necesidades presentes. La organización de los mismos y los servicios que ofrecen son el resultado del entusiasmo de todos y la cooperación del personal de los hospitales de distrito, quienes están prestando su tiempo y esfuerzos en adición a sus múltiples ocupaciones diarias.

Sidney Kaye, PhD

NOTICIAS

FAMILY MEDICINE IS APPROVED AS PRIMARY MEDICAL SPECIALTY

A new specialty of Family Medicine was officially recognized by organized medicine here last weekend when the Advisory Board for Medical Specialties and the Council on Medical Education of the American Medical Association approved a specialty board in family practice. The medical regulatory bodies met at the Palmer House.

The new specialty, twentieth of the profession's primary specialty groups, brings medicine full-circle since the trend toward specialization began after World War II. Before that, most doctors were G. P.'s, or family doctors. With creation of the specialty of Family Medicine, the family doctor himself now can become a specialist in his own right.

The Advisory Board actually approved a revised application for specialty status submitted by the American Academy of General Practice and the Section on General Practice of the AMA.

The new American Board of Family Practice is empowered by the decision to conduct examinations and to grant specialty certification to family physicians who meet its qualifications and pass the examination. This certification will be recognized by the American Medical Association and other regulative bodies in medicine, just as other specialty groups are recognized.

The new specialty grew out of the classic general practice on which modern scientific medicine was founded, Dr. Maynard I. Shapiro, Chicago, AAGP president said. He described it as an evolutionary development reflecting the changing pattern of American society, shifting population trends, changing public attitudes and demands, more specific standards and criteria for professional function, and the medical profession's recognition of its responsibility to devise a practical response to the nation's rising health care needs.

Official sanction of the new specialty is expected to increase the attractiveness of primary medical practice to young doctors. A basic problem in American health care has been a shortage of physicians and, more specifically, a severe shortage of physicians to serve as first-line doctors.

This is not just old-time general practice with a new name, however," Dr. Shapiro said. "We, and the many medical educators and traditional specialists who have been helping us, feel strongly that a true discipline has been identified, that its perimeters have been defined, and that a specific body of knowledge in a vital and needed area of medicine has begun to develop.

"This form of practice is built on the solid foundation of general practice but takes off dramatically from there into the important areas of behavioral science and the vital but little-understood health factors in environmental and interpersonal relationships. It is true that many old-time family doctors dealt in these factors without even realizing it; today we can teach it, and this is what the new specialty is about — teaching young doctors to practice in a scientific context those things that made the best of the old-time general practitioners great."

The Advisory Board for Medical Specialties' Liaison Committee deferred an earlier application last February. The revised application incorporated a new group of "Essentials for Graduate Training in Family Practice" approved by the AMA's Council on Medical Eduation and, at its last meeting, the House of Delegates of the AMA. Currently, there are 32 residency training programs actually in operation or in development in medical schools and hospitals. The new specialty board requires three years of graduate (residency) training for eligibility to take the certification examination.

Family doctors now in practice will be eligible to take the examination upon showing evidence of having completed a minimum of 300 hours of accredited post-graduate study in medicine. As a practical matter, in most cases this would mean having been a member of the Academy of General Practice for a period of six years. The AAGP, second largest U. S. medical association, requires its 31,000 members to complete a minimum of 150 hours of approved postgraduate study during each 3-year membership period. It is the only national medical organization with such a requirement.

The bylaws of the new board call for a termination of the "practice-eligible" category in 10 years, so that after that period only graduates of approved family practice residencies will be eligible for certification. There is no provision for "grandfathers" — certification can be achieved only by passing the examination - and periodic recertifications, also by examination, will be required. No other specialty board has a recertification provision.

The examination, Dr. Shapiro said, is ready to be given now. It was prepared by the National Board of Medical Examiners, Philadelphia, which designs most similar examinations for medical specialty boards, state licensing boards, and others. Dr. Shapiro added that the new board will begin offering the examinations as quickly as possible.

"We believe we have the most up-to-date, meaningful vehicle for proving technical competence in medicine today," Dr. Shapiro concluded. "The American public has a right to expect the highest degree of technical ability and full comprehension of the latest advances in medical science from all its doctors. We can give them proof of this for first-line physicians through this new board."

From the American Academy of General Practice - News, February 10, 1969, Kansas City, Missouri.

R. de Villafuerte
"The Americanization of Manuel de Rosas"
Vantage Press, New York, 1967.

El doctor R. Rodríguez-Molina ha dado a la publicidad un libro raro, pero sumamente interesante, con adecuados reflejos biográficos de legítimos entronques familiares y una novedosa exposición doctrinal del envedijado problema de la americanización en Puerto Rico. "The Americanization of Manuel de Rosas" es el título del libro, escrito en habla inglesa, con un seudónimo muy poco conocido, R. de Villafuerte, en la portada anterior y en la posterior el retrato del autor con una minúscula autenticación del seudónimo.

Una serie de nombres que al repetirse en muchos de los capítulos: Don Manolo, Manolo y Manuel de Rosas, pudiera tal vez crear impertinente confusión en la mente del lector, urge aclarar temprano. Don Manolo es el abuelo de los Rodríguez sabaneños y de alguno que otro que olvidando el romance pueblerino, optó por vivir en la capital de la isla. Don Manolo era a su vez perpetuo alcalde sin remuneración alguna, y agricultor de caña y de tabaco. Manolo es el padre del autor, uno de los principales personajes del libro, vecino de San Juan, donde había cursado el bachillerato en el Colegio de los Jesuítas, esperando trasladarse a Europa en pos de un título universitario. Manuel de Rosas es el autor del libro, R. Rodríguez-Molina, hijo de Manolo (M. Rodríguez Serra).

La catástrofe del '80 arruinó los Rodríguez de Sabana Grande, y tronchó las ambiciones de Rodríguez Serra que no quiso volver a su pueblo natal, y permancció en San Juan, dando rostro y luchando cuerpo a cuerpo con las dificultades del ambiente. Hombre de trabajo, desempeñó humildes menesteres en una fábrica de tabaco, pasando más tarde a ocupar una plaza de reportero en el "Heraldo" de Balbás. Para ese tiempo ingresó en el cuerpo de voluntarios bajo las órdenes del gobernador de la isla. Transcurrieron los años, contrajo matrimonio, y todas las bienandanzas con que había soñado, se redujeron a un título de bachiller, y a raquíticos emolumentos que apenas cubrían las necesidades del nuevo hogar.

El cambio de soberanía fue para Rodríguez Serra como para muchos otros jóvenes de la época, justo motivo para jubilar aquella vida llena de angustias y de privación. Apreciando con rapidez que el idioma inglés era indispensable en las nuevas trincheras, cultivó la amistad de un educado sargento del ejército americano, y en un intercambio de clases de español e inglés, dio muestras de un rápido y notable aprovechamiento.

Ya para ese tiempo, Rodríguez Serra aprovechando los cursos que la Universidad de la Habana ofrecía en el Ateneo de Puerto Rico, había obtenido el título de abogado y en posesión de dos idiomas, renunció su puesto de oficinista, y asociándose con un abogado surcño de apellido Kane, se estableció en un próspero bufete que pronto gozaría de inmenso crédito en toda la isla.

Como no es nuestro propósito discurrir en apologéticos tonos sobre el valor de una obra que fue escrita sin petulancias insólitas ni con humildes extremos, abreviaremos nuestro juicio, pero enfatizando que la vida del autor, que se desliza en ritmo histórico a través de las páginas del libro, puede ser y debe ser aleccionadora enseñanza para la juventud puertorriqueña.

Rafael Rodríguez-Molina completó el curso de alta escuela en el Instituto José de Diego, cursó el bachillerato en la Universidad de Puerto Rico y la carrera de Medicina en el Colegio Médico de Virginia. De regreso a Puerto Rico hizo su internado en el Hospital Presbiteriano pasando más tarde al cuerpo médico de la Escuela de Medicina Tropical. Las disciplinas de esa escuela y los estudios posteriores en Johns Hopkins y en Columbia, modificaron su espíritu por completo y lograron hacer de un inteligente observador un investigador integral, cavando nuevas trincheras a despecho de las horas y los días, en una vida obsesionada por el fervor de la investigación organizada.

Para esa época la Escuela de Medicina Tropical, en

unísona revivicación con la juventud médica que abandonaba las aulas, popularizaba con empeño el requisito indispensable de los nuevos métodos, llamando a fila numerosos jóvenes que enviaba a Europa y a Estados Unidos, para entrenamiento. De esa avanzada formaron parte Luis Hernández, Moreno Otero, Juan Antonio Pons, Enrique Salpisa, Oscar Costa Mandry, José Nova, Benito [illegible] y Enrico Hernández Morales, entre otros. [illegible] [illegible] [illegible]

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el número de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), e iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas médicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pilar Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras, Están semiequipadas. Sitio céntrico próximo a las calles principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas, Apartado 20267, Río Piedras, P. R., Teléfono 766-7398.



118th Annual Convention

AMA

NEW YORK CITY

JULY 13-17, 1969

The magnificence and excitement that characterizes New York City will provide a superb setting for AMA's 118th Annual Convention in July. Plan to attend now and look forward to five memorable and stimulating convention days in a city of unlimited entertainment.

Continue your postgraduate education with a varied program of • four General Scientific Meetings on Chronic Pulmonary Insufficiency and Problems of Air Pollution, Human Sexual Response, Impact of Medical Education on Patient Care and Physical Fitness and Aging • 23 Section Programs • Color Television • Medical Motion Pictures • and over 700 scientific and industrial exhibits. The nation's outstanding medical authorities will lecture and discuss significant advances in today's medicine.

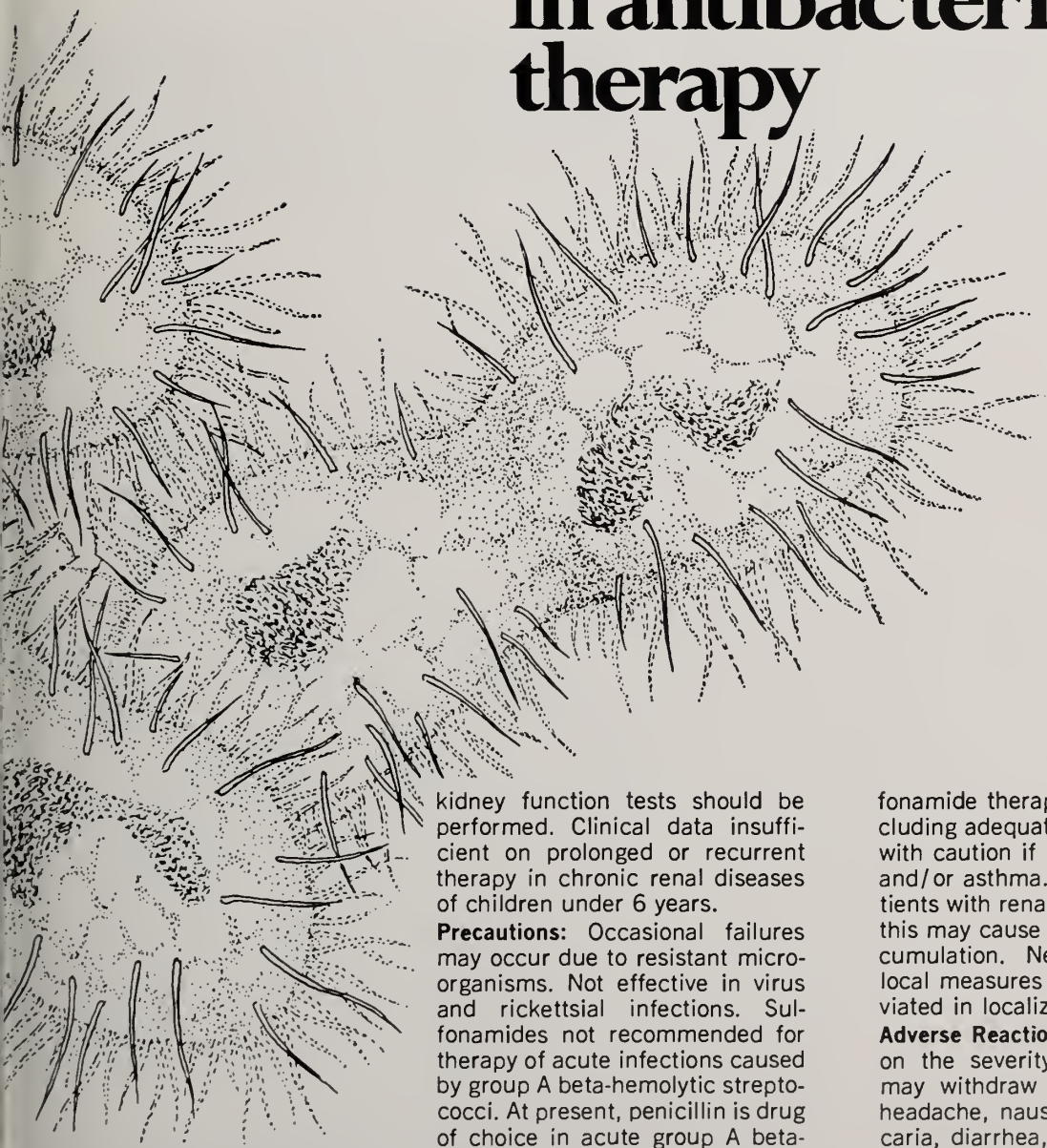
In addition the AMA-TV network will present more than [illegible] hours of convention programming.

Reserve now for the Scientific Awards Dinner in honor of the Scientific Award Winners—Wednesday, July 16, 1969. Since space is limited we suggest you make your reservations before June 30, 1969. Tickets are $10.00 each, payable in advance.

The complete scientific program, plus forms for advance registration and hotel accommodations, will be featured in JAMA, May 26, 1969.

NEW YORK CITY, NEW YORK • JULY 13-17, 1969
AMERICAN MEDICAL ASSOCIATION'S 118th ANNUAL CONVENTION

For a high index of confidence... Gantanol® (sulfamethoxazole) in antibacterial therapy



Artist's rendition of E. coli. As with most strains of E. coli, these have flagella and are motile.

kidney function tests should be performed. Clinical data insufficient on prolonged or recurrent therapy in chronic renal diseases of children under 6 years.

Precautions: Occasional failures may occur due to resistant microorganisms. Not effective in virus and rickettsial infections. Sulfonamides not recommended for therapy of acute infections caused by group A beta-hemolytic streptococci. At present, penicillin is drug of choice in acute group A beta-hemolytic streptococcal infections; although Gantanol has produced favorable bacteriologic conversion rates in this infection, data insufficient on long-term follow-up studies as to its effect on sequelae of rheumatic fever or acute glomerulonephritis. If other treatment cannot be used and Gantanol is employed in such infections, *important that therapy be continued in usual recommended dosage for at least 10 days.* Observe usual sulfonamide therapy precautions, including adequate fluid intake. Use with caution if history of allergies and/or asthma. Follow closely patients with renal impairment since this may cause excessive drug accumulation. Need for indicated local measures or surgery not obviated in localized infections.

Adverse Reactions: Depending upon the severity of the reaction, may withdraw drug in event of headache, nausea, vomiting, urticaria, diarrhea, hepatitis, pancreatitis, blood dyscrasias, neuropathy, drug fever, Stevens-Johnson syndrome, skin rash, injection of the conjunctiva and sclera, petechiae, purpura, hematuria and crystalluria.

ROCHE

Roche
LABORATORIES

Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Pertofrane®, desipramine hydrochloride
Indications: For relief of depression.
Contraindications: Do not use drugs of the M.A.O.I. class with Pertofrane. Hyperpyretic crises or severe convulsive seizures may occur; potentiation of adverse effects can be serious or even fatal. When substituting this drug in patients receiving an M.A.O.I., allow an interval of at least 7 days. Initial dosage in such patients should be low and increases should be gradual and cautiously prescribed.
Warning: Activation of psychosis may occasionally be observed in schizophrenic patients. Do not use in patients under 12 years old, and do not use in women who are or may become pregnant unless the clinical situation warrants the potential risk.
Precautions: Careful supervision and protective measures for potentially suicidal patients are necessary. Discontinuation of therapy or adjunctive use of a sedative or tranquilizer may be necessary in the presence of increased anxiety or agitation, hypomania or manic excitement. However, phenothiazines may aggravate the condition. Atropine-like effects may be more pronounced (e.g. paralytic ileus) in susceptible patients and in those receiving anticholinergic drugs (including antiparkinsonism agents). Carefully observe patients with increased intraocular pressure. Prescribe cautiously in hyperthyroid patients and in those receiving thyroid medications. Cardiovascular complications (myocardial infarction and arrhythmias) are potential risks since they have occasionally occurred with imipramine, the parent compound. Desipramine may bloc the pharmacologic activity of guanethidine and related adrenerg neuron-blocking agents. Hypertensive episodes have been obser during surgery in patients on desipramine therapy.
Before prescribing the drug, the physician should be thoroughly familiar with prescribing informat with the literature, with all adverse reactions, with the diagnosis and management of depression, and the relative merits of all measures

You decide who needs how much

PRESCRIPT



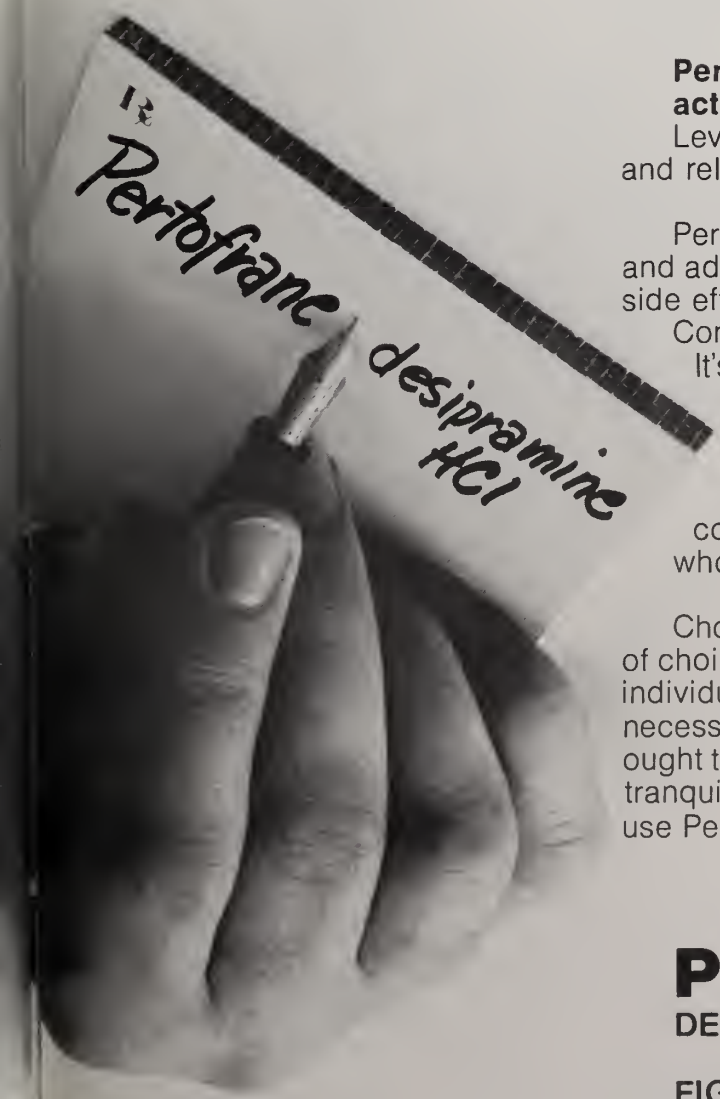
tating the condition.
Adverse Reactions: Dry mouth, constipation, disturbed visual accommodation, anorexia, perspiration, insomnia, drowsiness, dizziness, headache, nausea, epigastric distress, and skin rash (including photosensitization) may appear. Since orthostatic hypotension has occurred, carefully observe patients requiring concomitant vasodilating therapy, particularly during the initial phases. Other adverse reactions include tachycardia, changes in EEG patterns, tremor, falling, mild extrapyramidal activity, neuromuscular incoordination, epileptiform seizures. A confusional state (with such symptoms as hallucinations and disorientation) occurs occasionally and may require reduced dosage or discontinuance of therapy. Rarely, transient eosinophilia, slight elevation in transaminase levels, transient jaundice, or liver damage have occurred. If abnormalities occur in liver function tests, discontinue drug and investigate. Occasional hormonal effects, particularly decreased libido or impotence and instances of gynecomastia, galactorrhea and female breast enlargement have been observed. Urinary frequency or retention may occur. The drug should be discontinued if agranulocytosis, bone marrow depression, jaundice, thrombocytopenia, or purpura occur.
Dosage: 25 to 50 mg. t.i.d. The maximum daily dose is 200 mg. Continue maintenance dosage for at least 2 months after obtaining satisfactory response. Generally, elderly and adolescent patients should be given low doses.
Availability: Pink capsules of 25 mg. in bottles of 100 and 1000.
(B) 46-530-E

For complete details, please see the full prescribing information.

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

antidepressant and how much tranquilizer—

ON POWER



Pertofrane can give rapid antidepressant action often within 3 to 5 days.
Levels of psychomotor activity, patient outlook and related somatic complaints may improve.

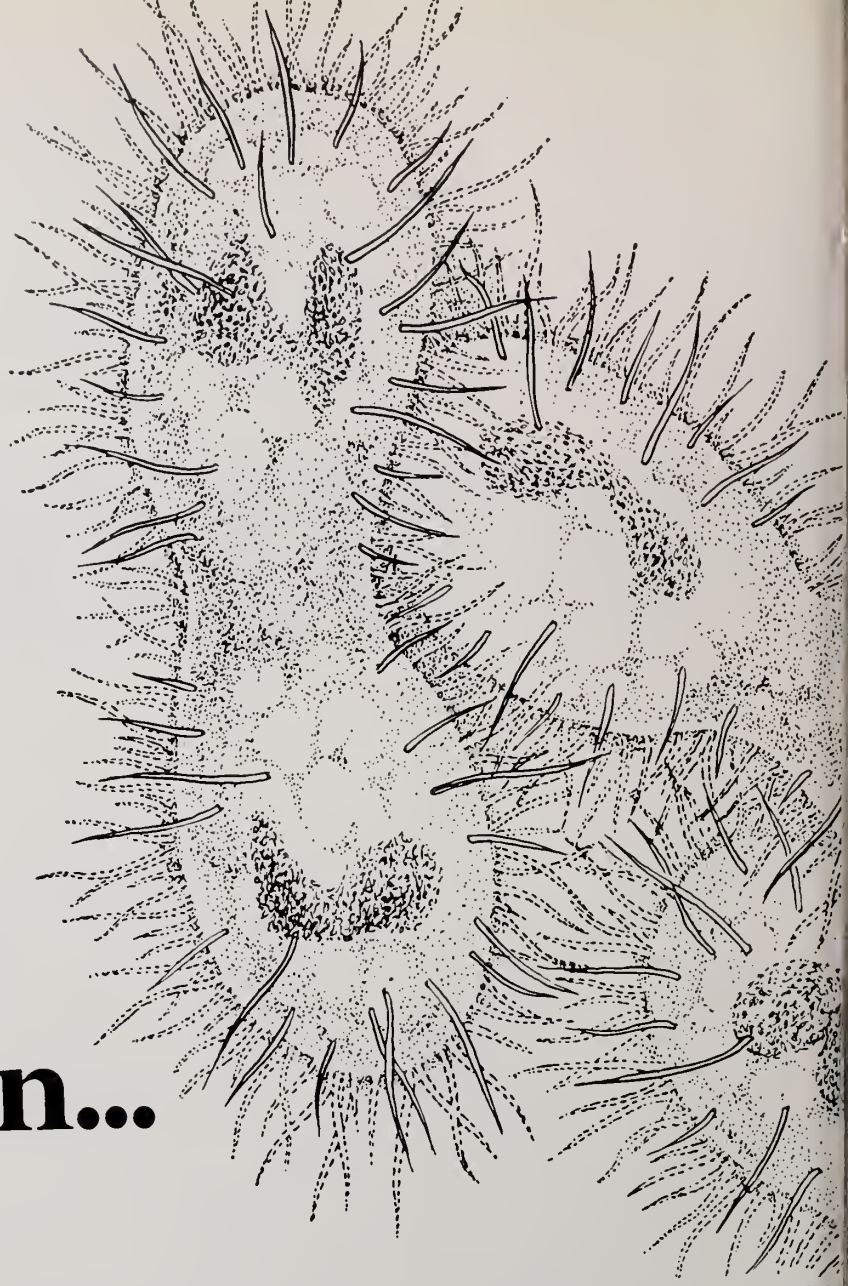
Pertofrane is well tolerated by most patients and adverse reactions are usually mild. A few serious side effects have been reported infrequently. Consult full prescribing information before using. It's summarized above.

Anxious Depressives...
May require adjunctive use of tranquilizers; but they don't always fit ready-made drug combinations. Isn't it better for *you* to decide who needs how much of which drugs?

Choose Pertofrane and pick your tranquilizer of choice. With this "combination", control the individual drug dosage adjustments that may be necessary for proper therapy. Isn't that the way it ought to be? Please remember, phenothiazine tranquilizers may aggravate depression, and never use Pertofrane with an MAO inhibitor.

PERTOFRANE®
DESIPRAMINE HYDROCHLORIDE **Geigy**

FIGHTS DEPRESSION



A high index of suspicion... E. coli

How high is the "index of suspicion" for *E. coli* in urinary tract infections?

Recently it has been estimated that about 86 per cent of positive cultures in first attacks of urinary tract infection are *E. coli*.[1] It has also been noted that "The coliform group, especially *E. coli*, accounts for approximately 90 per cent of initial infections...."[2]

Consider wide-spectrum Gantanol® (sulfamethoxazole) for its high "index of confidence"—its proven effectiveness against *E. coli* and other sensitive gram-negative and gram-positive organisms. Therapeutic levels of Gantanol in blood and urine are achieved within 2 hours after a 2-Gm starting dose, with ready diffusion into interstitial fluids. Responsive infections generally clear within 5 to 7 days, with relief of symptoms usually seen within 24-48 hours.

Gantanol also earns its high "index of confidence" because Gantanol therapy is relatively free from complications, including the problem of bacterial resistance or superinfection.

Convenient, economical dosage schedule: *b.i.d.*

References: **1.** Vernier, R. L., in Patient Care Feature: *Patient Care, 1*:20 (Feb.) 1967. **2.** Beeson, P. B.: "The Infectious Diseases," in Beeson, P. B., and McDermott, W. (eds.): *Cecil-Loeb Textbook of Medicine*, ed. 12, Philadelphia, W. B. Saunders Company, 1967, p. 230.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Acute and chronic urinary tract, respiratory and soft tissue infections due to susceptible microorganisms; prophylactically following diagnostic instrumental procedures on genitourinary tract.

Contraindicated in sulfonamide sensitive patients, pregnant fe males at term, premature infants or newborn infants during first months of life.

Warnings: Use only after critica appraisal in patients with liver c renal damage, urinary obstructio or blood dyscrasias. Deaths re ported from hypersensitivity reac tions, Stevens-Johnson syndrom agranulocytosis, aplastic anem and other blood dyscrasias. closely intermittent or prolonge therapy, blood counts and liver ar

A once-popular treatment for back pains was to have the seventh son of a seventh son stand or walk on the patient's back.



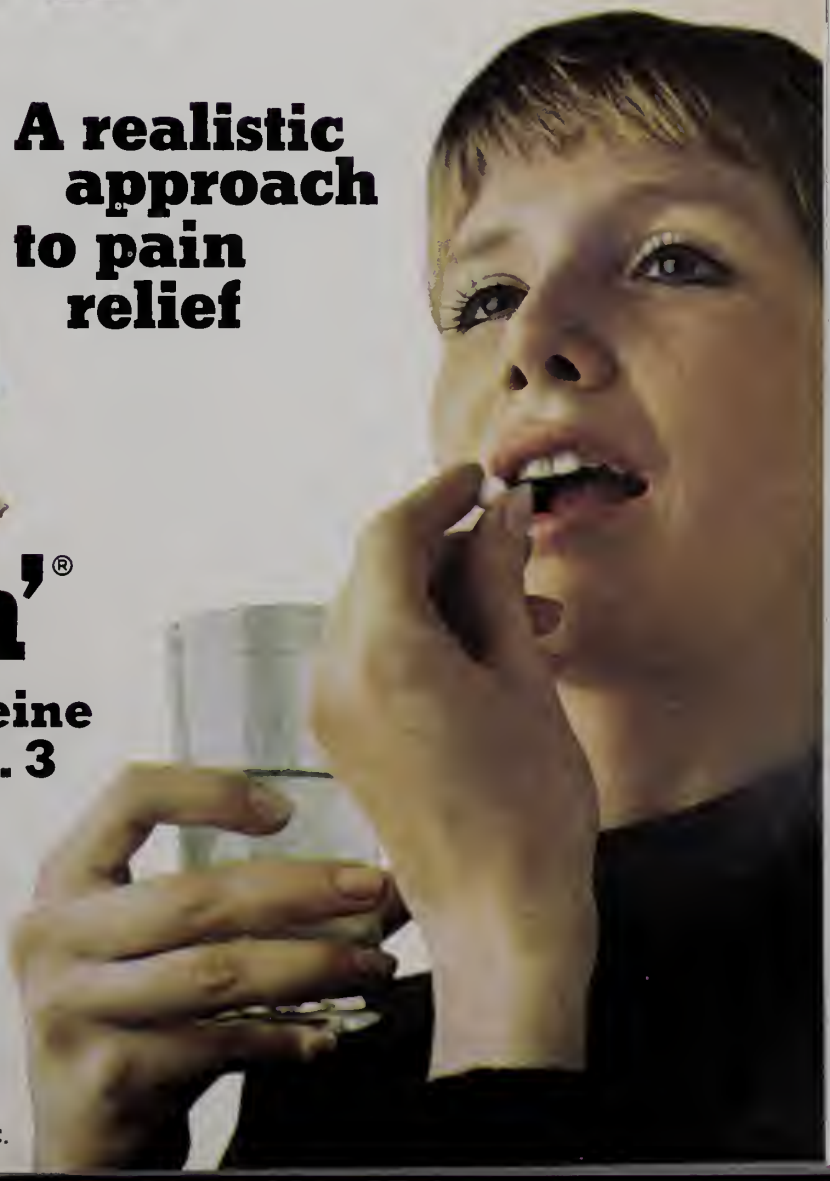


The pain of earache was allegedly relieved by holding a hot roasted onion to the ear.

For headache, a sovereign remedy was to wear a snakeskin round one's head.



A realistic approach to pain relief



'Empirin'®

Compound with Codeine Phosphate gr. 1/2 No. 3

Each tablet contains:
Codeine Phosphate gr. 1/2 (Warning—May be habit forming), Phenacetin gr. 2 1/2, Aspirin gr. 3 1/2, Caffeine gr. 1/2.

keeps the promise of pain relief

'B.W. & Co.' narcotic products are Class "B", and as such are available on oral prescription, where State law permits.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, N.Y.



heavenly relief
for unearthly cough

Benylin®
EXPECTORANT

Each fluidounce contains: 80 mg. Benadryl® (diphenhydramine hydrochloride, Parke-Davis); 12 grains ammonium chloride; 5 grains sodium citrate; 2 grains chloroform; 1/10 grain menthol; and 5% alcohol.

An antitussive and expectorant for control of coughs due to colds or of allergic origin, BENYLIN EXPECTORANT is the leading cough preparation of its kind.

BENYLIN EXPECTORANT tends to inhibit cough reflex... soothes irritated throat membranes. And its not-too-sweet, pleasant raspberry flavor makes BENYLIN EXPECTORANT easy to take.

PRECAUTIONS: Persons who have become drowsy on this or other antihistamine-containing drugs, or whose tolerance is not known, should not drive vehicles or engage in other activities requiring keen response while using this preparation. Hypnotics, sedatives, or tranquilizers if used with BENYLIN EXPECTORANT should be prescribed with caution because of possible additive effect. Diphenhydramine has an atropine-like action which should be considered when prescribing BENYLIN EXPECTORANT.

ADVERSE REACTIONS: Side reactions may affect the nervous, gastrointestinal, and cardiovascular systems. Drowsiness, dizziness, dryness of the mouth, nausea, nervousness, palpitation, and blurring of vision have been reported. Allergic reactions may occur.

PACKAGING: Bottles of 4 oz., 16 oz., and 1 gal.

Parke, Davis & Company
Detroit, Michigan 48232

PARKE-DAVIS

410R69



para esa tos molesta recomiende el nuevo jarabe, sin narcóticos

Cheracol D

dominio efectivo de la tos, sin codeína

Cheracol D con dextrometorfano:

- acción antitusiva igual que con codeína, pero sin efectos secundarios narcóticos indeseables
- afloja las secreciones bronquiales
- refresca y suaviza la garganta
- tiene un agradable sabor a cerezas que lo hace muy popular entre los niños
- puede ser administrado a niños menores de dos años, bajo la vigilancia del médico

Cada onza fluida contiene:	
Bromhidrato de dextrometorfano	9/10 gr. (60 mg.)
Cloroformo*	2 grs.
Guayacolato de Glicerilo	1⅖ grs.
Cloruro de Amonio	8 grs.
Tartrato de Antimonio y Potasio	1/12 gr.
Alcohol	3%

con corteza de pino blanco y de cerezo silvestre

*Cierta pérdida de cloroformo es inevitable.

Presentación: en frascos de 2 y 4 onzas.

Upjohn

REGISTRADO POR LA OFICINA DE PATENTES DE E. U. A. "HEBRON" PD 3075 2 APRIL 1968

"COPYRIGHT 1968 BY THE UPJOHN COMPANY. SE RESERVAN TODOS LOS DERECHOS"

UPJOHN INTER-AMERICAN CORPORATION/CAPARRA/PUERTO NUEVO

Symbols in a life of psychic tension

B.A.
cum laude

V.P.
at thirty-two

ECG
and complete examination normal
(persistent palpitations)



Valium®
(diazepam)

for reliable relief of psychic tension and associated somatic and depressive symptoms (including tension-induced insomnia)... usually well tolerated... 2-mg, 5-mg or 10-mg tablets *t.i.d.* and *h.s.*

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

DISPLAY
SHELVES



BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

CARCINOMA DE LA VEJIGA 83
Experiencia en el Hospital I. González Martínez
Silvio A. Aristizábal, MD, Antonio Bosch, MD, Zenaida Frías, MPH and Víctor A. Marcial, MD

INSIDIOUS ARSENIC POISONING 90
Sidney Kaye, MSc, PhD

THALASSEMIA MINOR AND INFECTION 94
R. Menéndez-Corrada, MD, Aida Fernández, BS, MT and Amina R. de Sala, MT, MS

CASE REPORT
SUPERNORMAL PHASE OF AV CONDUCTION IN A CASE OF AV BLOCK OF UNKNOWN ETIOLOGY 99
Fernando A. Córdova, MD and Elí A. Ramírez , MD, MSc

CARTA 104

EDITORIAL 106
Una Gran Alternativa y Cuatro Sacrificios .....

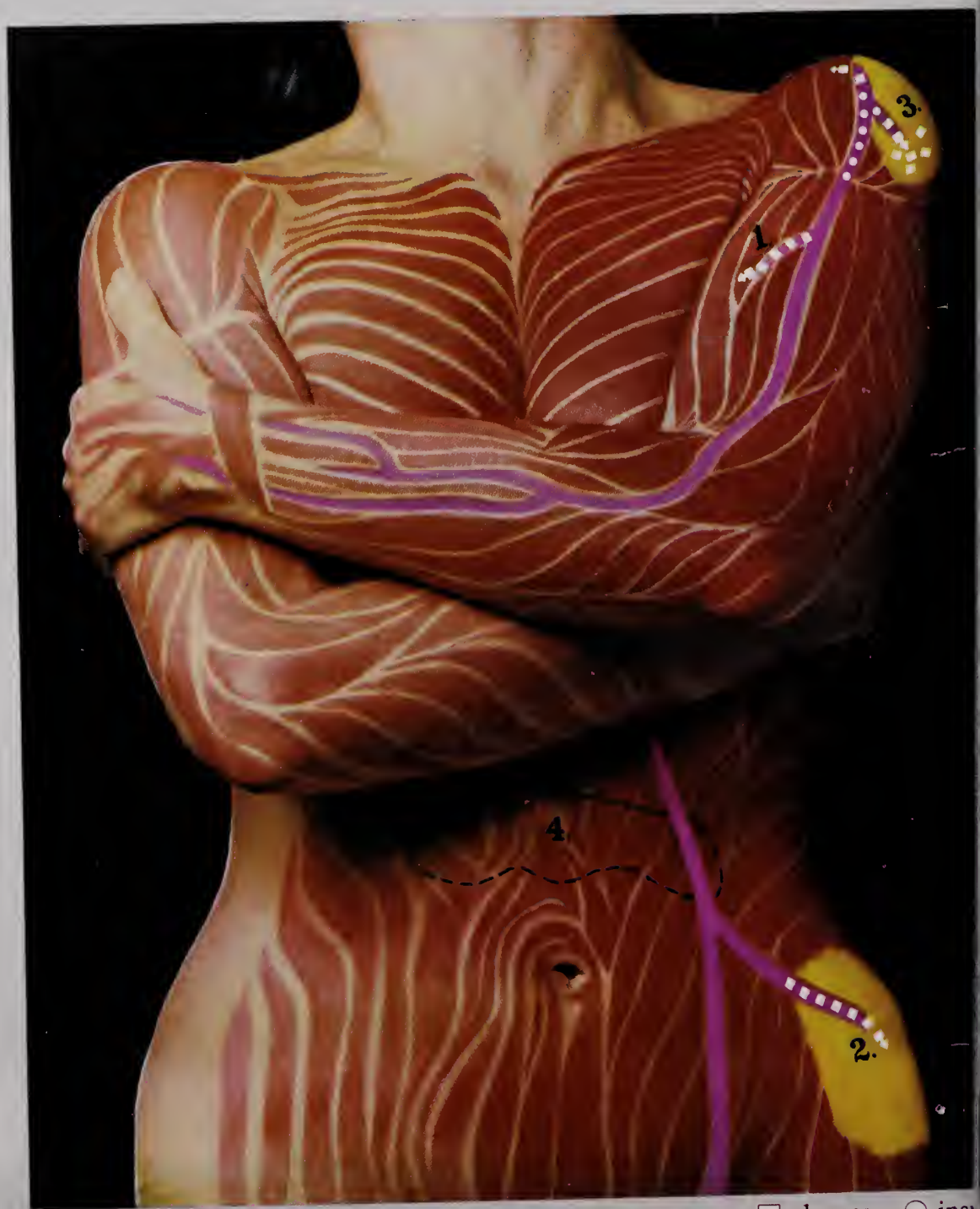
ACTUALIDADES MEDICAS 108

NOTICIAS 110

THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON
29 MAY 1969

VOL. 61 MARZO, 1969 NUM. 3

Why DBI-TD (phenformin HCl) is the only significant advance in oral diabetes therapy since sulfonylureas



□ glucose ○ insu

1 Only DBI-TD does more than just lower blood sugar–it directs sugar primarily to where it is most needed... in muscle.

In the maturity-onset diabetic, blood sugar is elevated, but apparently not enough glucose enters muscle. Unlike other agents, DBI-TD increases glucose utilization primarily in skeletal muscle where sugar is needed.

2 Only DBI-TD actually promotes weight loss in the maturity-onset diabetic who is overweight.

All oral drugs *except* DBI-TD increase insulin release, which suppresses lipolysis and can accelerate lipogenesis. Thus DBI-TD, by avoiding insulin oversecretion, appears to ease—rather than aggravate—the weight problem in patients unresponsive to diet alone.

3 Only DBI-TD, among oral agents, helps counterbalance the inefficient action of the diabetic's own insulin.

There is increasing evidence that many overweight maturity-onset diabetics have higher than normal blood insulin levels, but this insulin is not efficient in promoting muscle glucose uptake. Unlike all other oral agents, DBI-TD helps control diabetes by selectively moving sugar into muscle without further increasing insulin levels.

4 Only DBI-TD, because of its unique action, reduces the risk of secondary failure and hypoglycemic reaction.

DBI-TD is the only agent that lowers blood sugar without stimulating the release of insulin from the pancreas. Secondary failures are infrequent with DBI-TD, and there is relative freedom from hypoglycemic reaction when DBI-TD is used alone.

a more physiological approach to begin with

DBI®-TD

(phenformin HCl)

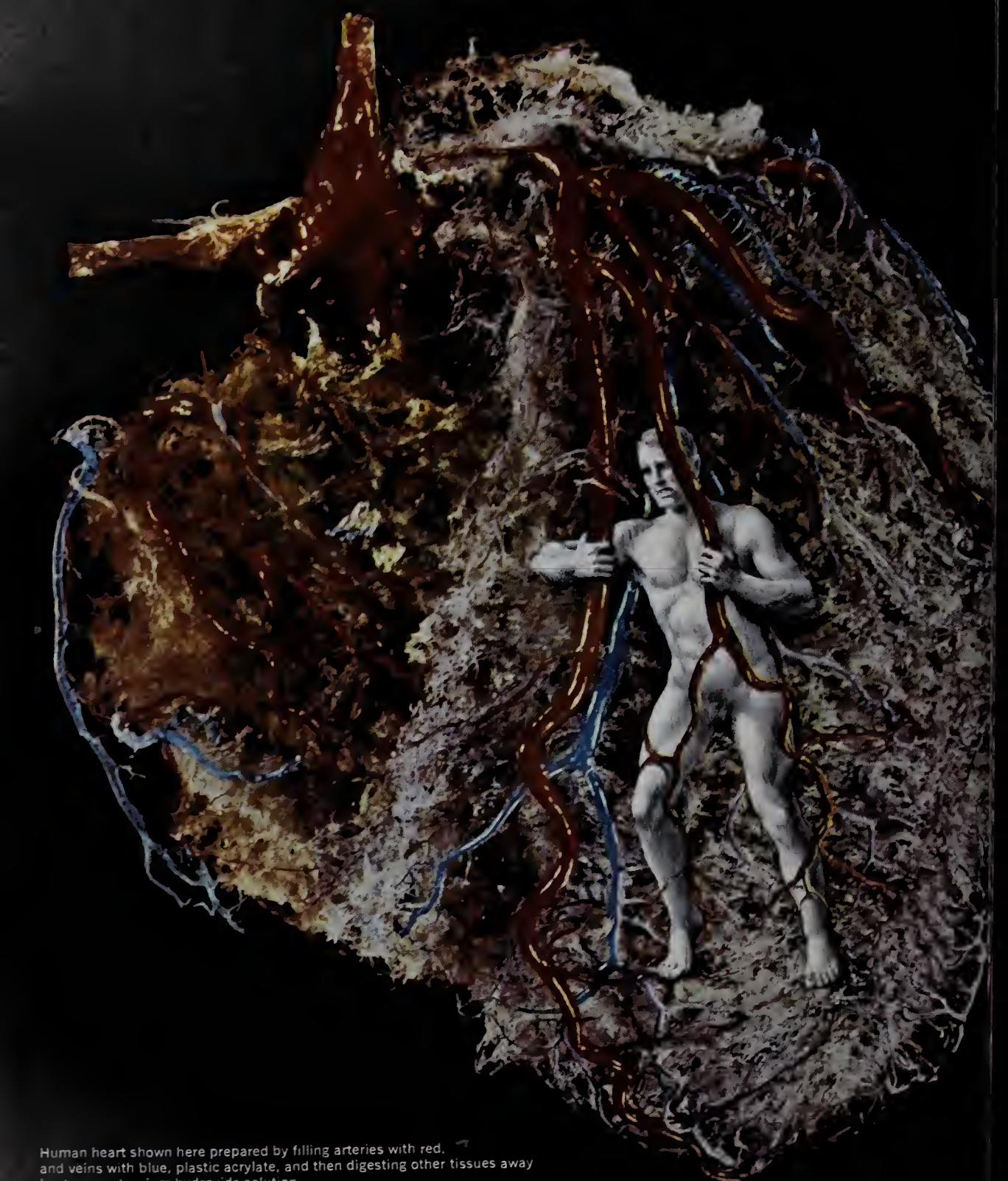
timed-disintegration capsules 50 mg.

Dosage: 1 to 3 capsules daily. **Side Effects:** Gastrointestinal, occurring more often at higher dosage levels, abate promptly upon dosage reduction or temporary withdrawal. **Adverse Reaction:** Urticaria. **Precautions:** Occasionally an insulin-dependent patient will show "starvation" ketosis (acetonuria without hyperglycemia) which must be differentiated from "insulin lack" ketosis which is accompanied by acidosis, and treated accordingly. Lactic acidosis has been reported in nondiabetics and diabetics treated with insulin, with diet, and with DBI. Question has arisen regarding possible contribution of DBI to lactic acidosis in patients with renal impairment and azotemia and also those with severe hypotension secondary to myocardial or bowel infarction. Periodic B.U.N. determination should be made when DBI is administered in the presence of chronic renal disease. DBI should not be used when there is significant azotemia. Any cardiovascular lesion that could result in severe or sustained hypotension, which may itself lead to development of lactic acidosis, should be considered cause for immediate discontinuation of DBI at least until normal blood pressure has been restored and is maintained without vasopressors. Should lactic acidosis occur from any cause, vigorous attempts should be made to correct circulatory collapse, tissue hypoxia, and pH. **Contraindications:** Severe hepatic disease, renal disease with uremia, cardiovascular collapse. Not recommended without insulin in acute complications of diabetes (metabolic acidosis, coma, severe infections, gangrene, surgery). ***Pregnancy Warning:*** *During pregnancy, until safety is proved, use of DBI, like other oral hypoglycemic drugs, is to be avoided.* **Also Available:** DBI tablets 25 mg. *Consult product brochure.*

USV

USV PHARMACEUTICAL CORP., New York, N.Y. 10017
Producers of ARLIDIN® (nylidrin HCl)

Help free him from anginal pain



Human heart shown here prepared by filling arteries with red,
and veins with blue, plastic acrylate, and then digesting other tissues away
in strong potassium hydroxide solution.

before the pain begins

Nitrospan's micro-dialysis process extends the benefits of nitroglycerin therapy to sustained prophylaxis.

Treatment of the acute attack, effective though it may be, satisfies only one of the primary aims of therapy in angina pectoris. Equally important — but more difficult to achieve — is long-term prophylaxis. To the degree that an antianginal agent meets this goal, it reduces for the patient the threat of pain, encouraging reasonable pursuit of daily activities. This is the rationale for Nitrospan therapy. And these are the reasons why it will often succeed:

Nitrospan twice daily provides dependable, long-acting antianginal therapy.

The release mechanism of Nitrospan is totally different from conventional sustained-action preparations whose efficiency is subject to unpredictable gastrointestinal function. Nitrospan's micro-dialysis process requires only the presence of fluid in the G.I. tract to release nitroglycerin *smoothly* and *continuously* for b.i.d. protection.



Nitrospan helps decrease frequency and severity of attacks as well as need for sublingual nitroglycerin.

Comparisons[1-3] with placebo control show that Nitrospan works — not just in theory, but in patients.

Nitrospan helps increase exercise tolerance; often improves outlook.

With pain — and the threat of pain — reduced, the anginal patient is able to live more fully. And after all, isn't that what long-term prophylaxis of angina is all about?

References: 1. White, J.R.: J. Med. A. Alabama ***36:667***, 1966. 2. Schwartz, W.: Submitted for publication. 3. Maggi, G.C., and Bannó, S.: Cardiologia ***47:*** 247, 1965. ***Indication and Dosage:*** For prophylactic use only in angina pectoris, 1 capsule every twelve hours. ***Precautions:*** For prophylaxis only, not for relief of acute anginal attacks. Tolerance to nitrites may develop on long-continued use. ***Contraindications:*** Idiosyncrasy to nitroglycerin, and early myocardial infarction. ***Side Effects:*** With use of nitrites, transient headache, postural hypotension, nausea and vomiting may occur. Overdoses may cause flushing, dizziness, tachycardia, headache and syncope.

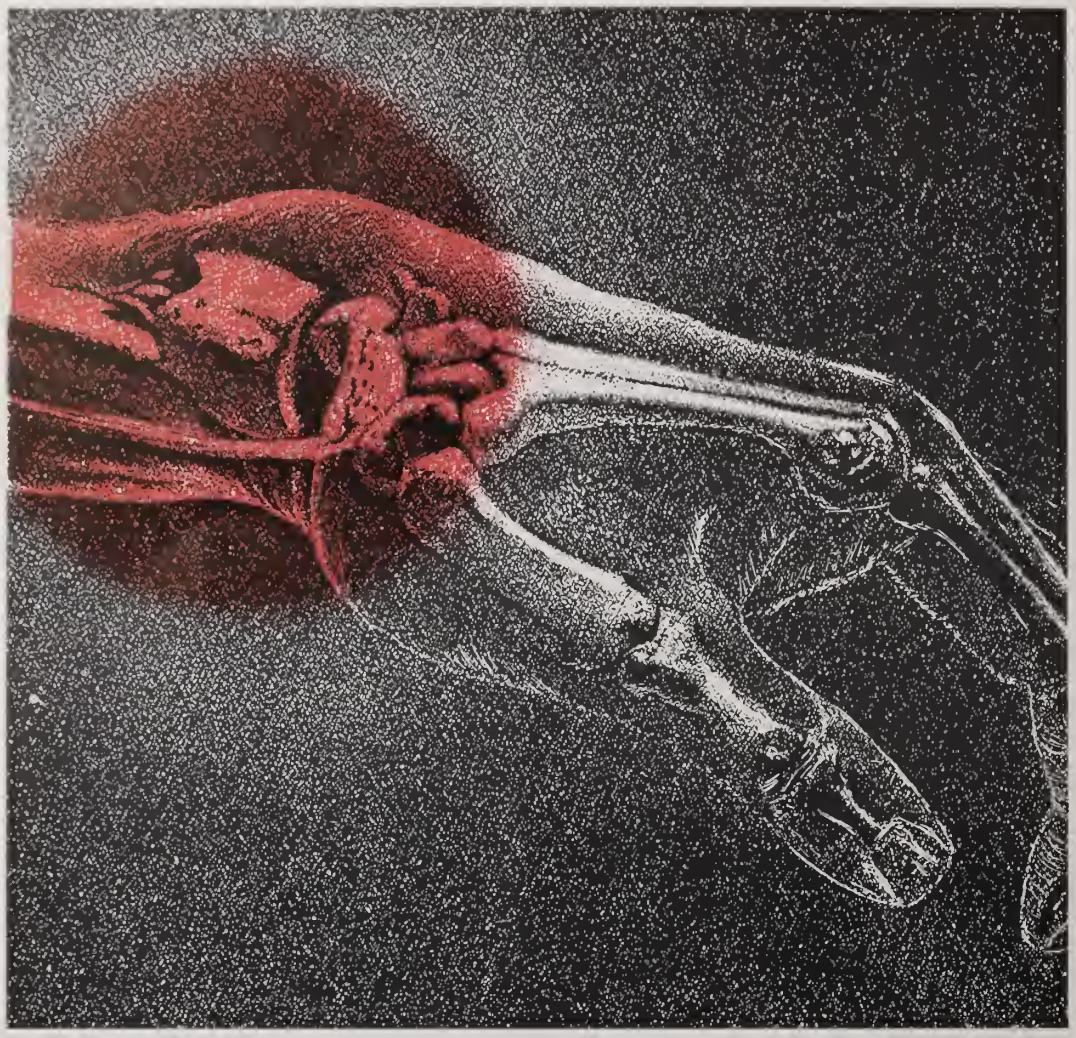
USV

USV PHARMACEUTICAL CORP.
800 Second Avenue, New York, N.Y. 10017
Producers of DBI®-TD (phenformin HCl)

NITROSPAN q.12 h.

nitroglycerin

2.5 mg in micro-dialysis cells



Can fracture cases do better with Ananase?

This one did: A 42-year-old fireman fell and suffered a fracture of his left wrist. When pressure and edema appeared to be increasing under the cast, Ananase was used adjunctively for a trial period of 24 hours. "When seen the next morning, all edema and pressure had disappeared." Marked relief was experienced with no further treatment.[1]

When the effect of Ananase on inflammation and edema was compared with the expected response to conventional therapy, without Ananase, "superior" results were obtained with Ananase in 83% of 18 fracture cases observed.[1]

Your own experience will confirm the efficacy of Ananase in helping to reduce inflammation and edema and speeding the healing process. For best results give Ananase early and in maximum dosage.

Usual Adult Dose: Initially, two tablets four times daily. For maintenance, one tablet three or four times daily.

Side Effects: Ananase has a wide margin of safety. There have been few toxic effects reported. It should be used with caution in patients with abnormalities of the blood clotting mechanism, such as hemophilia, or with severe hepatic or renal disease.

Supplied: Bottles of 100 and 500 tablets, each tablet containing 50,000 Rorer units.

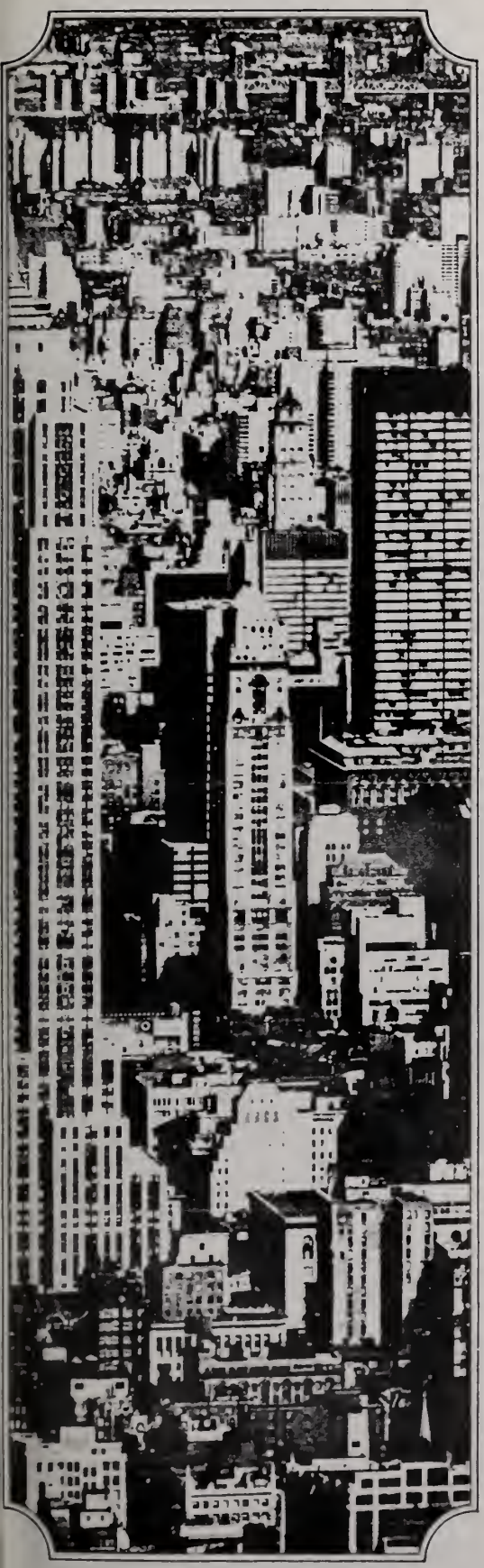
One Rorer unit of protease activity is defined as that amount of enzyme which will so hydrolyze a standardized casein substrate at pH 7.0 and 25° C temperature as to cause a change in absorbance of 1 x 10^{-5} at 280 mu per minute of reaction time.

1. Cirelli, M. G.: Delaware M. J. *34*:159 (June) 1962.

ROHER

WILLIAM H. RORER, INC.
FORT WASHINGTON, PA.

Ananase®
(plant protease concentrate)



118th Annual Convention

AMA

NEW YORK CITY

JULY 13-17, 1969

The magnetism and the grandeur that characterizes New York City will provide a superb setting for AMA's 118th Annual Convention in July. Plan to attend now and look forward to five memorable and stimulating convention days in a city of unlimited excitement.

Continue your postgraduate education with a varied program of • four General Scientific Meetings on Chronic Pulmonary Insufficiency and Problems of Air Pollution, Human Sexuality, Impact of Medical Education on Patient Care, and Physical Fitness and Aging • 23 Section Programs • Color Television • Medical Motion Pictures • and over 700 scientific and industrial exhibits. The nation's outstanding medical authorities will lecture and discuss the significant advances in today's medicine.

In addition the AMA TV network will present more than 40 hours of convention programming.

Reserve now for the Scientific Awards Dinner in honor of the Scientific Award Winners—Wednesday, July 16, 1969. Since space is limited, we suggest you make your reservations before June 30, 1969. Tickets are $10.00 each, payable in advance.

The complete scientific program, plus forms for advance registration and hotel accommodations, will be featured in JAMA, May 26, 1969.

NEW YORK CITY, NEW YORK • JULY 13-17, 1969
AMERICAN MEDICAL ASSOCIATION'S 118th ANNUAL CONVENTION



Hot under the collar...

high under the cuff.

Sometimes
he forgets he has hypertension, gets hot under the collar. . . high under the cuff.

For such
patients, consider **Regroton®**

chlorthalidone	50 mg.
reserpine U.S.P.	0.25 mg.

To lower blood pressure
and allay anxiety in hypertension.

For brief summary of prescribing information, see next page

Regroton®

Geigy

chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

the once-a-day tablet for anxious hypertensives

Regroton is a combination of two basic antihypertensives designed to lower blood pressure and allay anxiety in hypertension. With Regroton he can keep his shirt on and you can keep his blood pressure down.

Before prescribing, please review carefully the indications, contraindications, warning, precautions, adverse reactions and dosage information below.

Regroton®
Each tablet contains:
chlorthalidone 50 mg.
reserpine U S.P. 0.25 mg.

Indications: Hypertension.
Contraindications: History of mental depression, hypersensitivity, and most cases of severe renal or hepatic diseases.
Warning: With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has frequently been required and deaths have occurred. Discontinue coated potassium-containing formulations immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur. Discontinue one week before electroshock therapy, and if depression or peptic ulcer occurs.
Use in pregnancy: Because chlorthalidone may cross the placental barrier and appear in cord blood and thiazides may appear in breast milk, this drug should be used with care in pregnant patients and nursing mothers. When used in women of childbearing age, the potential benefits of the drug should be weighed against the possible hazards to the fetus. Use of chlorthalidone may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. Increased respiratory secretions, nasal congestion, cyanosis and anorexia may occur in infants born to reserpine-treated mothers.
Precautions: Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs, or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. To avoid hypotension during surgery, discontinue therapy with this agent two weeks prior to elective surgical procedures. In emergency surgery, use, if needed, anticholinergic or adrenergic drugs or other supportive measures as indicated. Because of the possibility of progression of renal damage, periodic kidney function tests are indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated. Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria.
Take particular care in cirrhosis or severe ischemic heart disease and in patients receiving corticosteroids, ACTH, or digitalis. Severe salt restriction is not recommended. Use cautiously in patients with ulcerative colitis or gallstones (biliary colic may be precipitated). Bronchial asthma may occur in susceptible patients.
Adverse Reactions: The drug is generally well tolerated. The most frequent side effects are nausea, gastric irritation, vomiting, diarrhea, constipation, muscle cramps, headache, dizziness and acute gout. Other potential side effects include angina pectoris, anxiety, depression, bradycardia and ectopic cardiac rhythms (especially when used with digitalis), drowsiness, dull sensorium, hyperglycemia and glycosuria, hyperuricemia, lassitude, restlessness, transient myopia, impotence or dysuria, orthostatic hypotension which may be potentiated when chlorthalidone is combined with alcohol, barbiturates or narcotics, leukopenia, aplastic anemia, skin rashes, thrombocytopenia, agranulocytosis, nasal stuffiness, increased gastric secretions, nightmare, purpura, urticaria, ecchymosis, weakness, uveitis, optic atrophy and glaucoma, and pruritus. Eruptions and/or flushing of the skin, a reversible paralysis agitans-like syndrome, blurred vision, conjunctival injection, increased susceptibility to colds, dyspnea, weight gain, decreased libido, dryness of the mouth, deafness, anorexia, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Jaundice, xanthopsia, paresthesia, photosensitization and necrotizing angiitis are possible.
Average Dosage: One tablet daily with breakfast.
Availability: Pink, single-scored tablets in bottles of 100 and 1000.
(B)46-600-C
For details, please see complete prescribing information.

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

RE-6392

REGROTON JOB NO. JS -RE-9700 (L) - 3rd Page
3 Pages: 2 Pages B&W Bleed; 1 Page B&W No Bleed-RE-6392



LOCAL ACTION

Aristocort®
Triamcinolone Acetonide

STANDARDIZED ITEM	Topical Cream 0.5%—½ lb. jar—FSN 6505-071-6547
AVAILABLE ON FEDERAL SUPPLY SCHEDULE	Ointment 0.1% —Tubes of 5 and 15 Gm., ½ lb. jar Topical Cream 0.1%—Tubes of 5 and 15 Gm., ½ lb. jar Topical Cream 0.5%—Tubes of 5 and 15 Gm.

When potent and prolonged steroid action is desired topically, as in contact dermatitis, atopic dermatitis, eczematous dermatitis, psoriasis and external otitis, the topical forms of ARISTOCORT® Triamcinolone Acetonide are especially effective.

ARISTOCORT topically affords the specific therapeutic benefits of oral ARISTOCORT Triamcinolone without incurring the same degree of risk of unwanted systemic steroid effects in localized atopic dermatitis, eczematous dermatitis, nummular eczema, contact dermatitis, external otitis, seborrheic dermatitis, eczematized psoriasis, neurodermatitis and eczematized mycotic dermatitis. Especially if the dermatosis is of allergic origin, remission may not, however, be permanent. In most cases responsive to topical ARISTOCORT, the 0.1% concentration is sufficiently potent, but the 0.5% concentration may elicit a more satisfactory response in some, specifically in atopic dermatitis, eczematous dermatitis, seborrheic dermatitis and certain cases of psoriasis.

Administration and Dosage: Apply sparingly to the affected area 3 or 4 times daily.

Contraindications: Tuberculosis of the skin, herpes simplex, chicken pox and vaccinia.

Precautions and Side Effects: Do not use in the eyes or in the ear (if drum is perforated). A few individuals react unfavorably under certain conditions. If side effects are encountered, the drug should be discontinued and appropriate measures taken. Use on infected areas should be attended with caution and observation, bearing in mind the potential spread of infection and the advisability of discontinuing therapy and/or initiating antibacterial measures. Generalized dermatological conditions may require systemic corticosteroid therapy. Steroid therapy, although responsible for remissions of dermatoses, especially those of allergic origin, cannot be expected to prevent recurrence. The use over extensive body areas, with or without occlusive nonpermeable dressings, may result in systemic absorption. Appropriate precautions should be taken. When occlusive nonpermeable dressings are used, miliaria, folliculitis, and pyodermas will sometimes develop. Localized atrophy and striae have been reported with the use of steroids by the occlusive technique. When occlusive nonpermeable dressings are used, the physician should be aware of the hazards of suffocation and flammability. The safety of use on pregnant patients has not been firmly established. Thus do not use in large amounts or for long periods of time on pregnant patients.

LEDERLE LABORATORIES • A Division of American Cyanamid Company, Pearl River, N. Y.

Lederle

406-7



There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

Member of the National Association of Blue Shield Plans



Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®

Only from Ortho...



the product of choice for the method of choice

ORTHO PHARMACEUTICAL CORPORATION
RARITAN, NEW JERSEY 08869

Ortho

© OPC 1967

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:

Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:

El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:

Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.



The Fortunate One.

Her urinary tract infection reveals itself through pain and discomfort.

While the pain and discomfort of a G.U. infection are anything but pleasant, the patient may be luckier than she realizes. That burning sensation (and/or frequency, urgency, dysuria) is a usually reliable sign of a urinary tract infection. And it's her good fortune that her infection won't go undetected...or untreated.

Azo Gantanol® therapy usually provides analgesic action within one-half hour, while control of the infection begins within two hours. Azo, a specific urinary analgesic, soothes inflamed mucosa to give symptomatic relief. At the same time, the antibacterial component, Gantanol (sulfamethoxazole), achieves therapeutic levels in the blood and urine, with diffusion into interstitial fluids. Azo Gantanol—a good choice when urinary tract infection reveals itself through symptomatic distress.

Before prescribing, please consult complete product information, a summary of which appears on opposite page.

Azo Gantanol®

(Each tablet contains 0.5 Gm sulfamethoxazole and 100 mg phenazopyridine HCl.)

Azo for the pain Gantanol® (sulfamethoxazole) for the pathogens

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Urinary tract infections with associated pain or discomfort when due to susceptible organisms; prophylactically in urologic surgery, catheterization and instrumentation.

Contraindicated in sulfonamide-sensitive patients, pregnant females at term, premature infants, newborn infants during the first three months of life, glomerular nephritis, severe hepatitis, uremia and pyelonephritis of pregnancy with gastrointestinal disturbances.

Warnings: Use only after critical appraisal in patients with liver damage, renal damage, urinary obstruction or blood dyscrasias. If toxic or hypersensitivity reactions or blood dyscrasias occur, discontinue therapy. In closely intermittent or prolonged therapy, blood counts and liver and kidney function tests should be performed.

Precautions: Observe usual sulfonamide therapy precautions including maintenance of an adequate fluid intake. Use with caution in patients with histories of allergies and/or asthma. Patients with impaired renal function should be followed closely since renal impairment may cause excessive drug accumulation. Occasional failures may occur due to resistant microorganisms. Not effective in virus and rickettsial infections.

Adverse Reactions: Headache, nausea, vomiting, urticaria, diarrhea, hepatitis, pancreatitis, blood dyscrasias, neuropathy, drug fever, skin rash, Stevens-Johnson syndrome, injection of the conjunctiva and sclera, petechiae, purpura, hematuria or crystalluria may occur, in which case the dosage should be decreased or the drug withdrawn.

Dosage: Adults—4 tablets initially, then 2 tablets morning and evening.

How Supplied: Tablets, bottles of 50.

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Success is something you can't leave a son



In today's complex and specialized world, success depends more and more on whether he gets a college education.

But he may not be able to get one unless the nation's colleges can answer some serious questions: How to cope with rapidly increasing student enrollments? How to keep the quality of education constantly improving with more modern laboratories, better libraries, new classrooms? How to attract able new faculty members?

Your support will help colleges answer these questions . . . help them make your son ready for his world.

Give to the college of your choice.

COUNCIL FOR FINANCIAL AID TO EDUCATION

ADVERTISING COUNCIL

advertising contributed for the public good



NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extraoiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.

CARCINOMA DE LA VEJIGA:
Experiencia en el Hospital I. González Martínez

Silvio A. Aristizábal, MD
Antonio Bosch, MD
Zenaida Frías, MPH
Víctor A. Marcial, MD

El tratamiento del carcinoma de la vejiga sigue siendo un problema a pesar del desarrollo de las técnicas quirúrgicas y del uso de unidades de supervoltaje en radioterapia.

La mayoría de los artículos que se encuentran en la literatura se refieren a series de pacientes tratados con cirugía (1-10) o con radioterapia (11-22) exclusivamente. En los últimos años la combinación de estas dos técnicas de tratamiento ha sido utilizada y aunque existen diversas publicaciones al respecto (23-29), el número de casos tratados y el período de estudio no es suficiente para poder llegar a conclusiones definitivas.

En Puerto Rico el tratamiento del carcinoma de la vejiga ha sido esencialmente quirúrgico y sólo son referidos a radioterapia aquellos pacientes que por razones médicas o lo avanzado de la enfermedad se consideran inoperables.

El propósito de este estudio es evaluar los resultados de tratamiento en una serie de casos vistos en el Hospital I. González Martínez. Se analizan además algunos factores que tienen importancia en el pronóstico, tratando de encontrar pautas que nos ayuden a enfocar más adecuadamente el problema.

Material

Se incluyen en el estudio 194 casos con diagnóstico de carcinoma de la vejiga vistos en el Hospital I. González Martínez durante un período de 16 años, comprendidos entre el 1 de enero de 1950 y el 31 de diciembre de 1965. Estos pacientes fueron referidos a nuestra institución de toda la Isla por los hospitales regionales, centros de salud, urólogos y médicos en práctica privada.

De la División de Radioterapia y Cáncer del Centro Nuclear de Puerto Rico, el Departamento de Radioterapia del Hospital I. González Martínez y la Escuela de Medicina de la Universidad de Puerto Rico, San Juan, Puerto Rico.
Con ayuda del donativo del Servicio de Salud Pública Federal Núm. CA-5169-05.

Se excluyeron 15 casos por carecer de confirmación histológica, quedando un total de 179 pacientes que constituyen la base de nuestro análisis.

Sexo: De estos 179 pacientes, 111 (66 porciento) eran hombres y 68 (38 porciento) eran mujeres, dándonos una relación hombres-mujeres de 2 a 1 aproximadamente.

Edad: El 77 porciento de los casos en nuestra serie están por encima de los 60 años, como podemos ver en la Tabla I. El promedio de edad fue de 65.9 años. El paciente más joven tenía 33 años y el más viejo 89 años.

Síntomas: La Tabla II nos muestra en orden de frecuencia el primer síntoma que apareció en los pacientes. La hematuria, la disuria o la combinación de ambas fueron la primera manifestación del tumor en el 80 porciento de los casos.

Histología: En la Tabla III podemos ver la distribución de nuestros casos teniendo en cuenta el tipo histológico del tumor. El 69 porciento de los tumores eran de tipo transicional, el 17 porciento carcinomas epidermoides, 5 porciento anaplásicos, 3 porciento carcinomas no especificados y 2 porciento adenocarcinomas.

Estadío: En nuestra serie los pacientes fueron clasificados por estadío "a posteriori" y para ello se tuvieron en cuenta todos los datos disponibles en el expediente clínico del paciente como son: biopsias, estudio anatomo-patológico del especimen quirúrgico, descripción de laparatomía, hallazgos de cistoscopía, palpación pélvica bimanual, estudios radiográficos, etc.

La clasificación por estadíos más ampliamente aceptada es la de Marshall (30), pero para poder hacer uso de ella todos los pacientes deben tener biopsias fraccionadas que indiquen con cierta precisión la profundidad de la infiltración tumoral y, además, examen bimanual bajo anestesia. Obviamente la mayoría de nuestros casos no llenan estos dos requisitos, por lo cual preferimos adoptar una clasificación que fuera más flexible y al mismo tiempo nos permitiera comparar nuestra serie con las demás informadas en la literatura.

Otros autores (12, 16, 21, 31) han usado clasificaciones más sencillas, agrupando los siete estadíos de Marshall en sólo tres categorías: temprano, moderadamente avanzado y avanzado. Los términos de superficial, profundo y metastásico han sido también utilizados. Como la totalidad de los pacientes en nuestro estudio han sido clasificados con base clínica exclusivamente adoptamos este tipo de clasificación exponiendo a continuación nuestro criterio para cada estadío:

Estadío temprano: a) Papilomas (clínica y anatomo-patológicamente), b) lesiones cuya biopsia o especimen quirúrgico mostraba infiltración no más allá de la capa muscular

superficial, c) tumores cuyas biopsias no hacían referencia a la profundidad de infiltración pero que cistoscópicamente eran pequeños (-3 cm) y superficiales. El examen pélvico era completamente negativo.

TABLA I: DISTRIBUCION POR EDAD

Edad	No.	Porciento
30-39	4	2
40-49	11	6
50-59	27	15
60-69	66	37
70-79	53	30
80-89	18	10
Total	179	100

TABLA II: SINTOMAS

Síntoma	No.	Porciento
Hematuria	90	50.0
Hematuria y disuria	33	18.0
Disuria	23	13.0
Dolor	14	8.0
Frecuencia	8	4.0
Retención	4	2.0
Incontinencia	1	0.5
Orina turbia	1	0.5
Sangrado vaginal	1	0.5
Asintomático	1	0.5
No mencionado	3	2.0
Total	179	100.0

TABLA III: DIAGNOSTICO HISTOLOGICO

Histología	No.	Porciento
Papiloma transicional	6	3.5
Carcinoma transicional	124	69.0
Carcinoma epidermoide	31	17.0
Carcinoma anaplásico	9	5.0
Carcinoma	5	3.0
Adenocarcinoma	4	2.5
Total	179	100.0

Estadío moderadamente avanzado: a) Lesiones cuya biopsia o especimen quirúrgico mostraba infiltración profunda del músculo o extensión del tumor a la grasa perivesical, b) tumores cuya biopsia no hacía referencia a profundidad de infiltración pero que endoscópicamente eran infiltrantes, ulcerados o extensos (+3 cm) y en los cuales la palpación pélvica mostraba una induración o una masa móvil en la línea media.

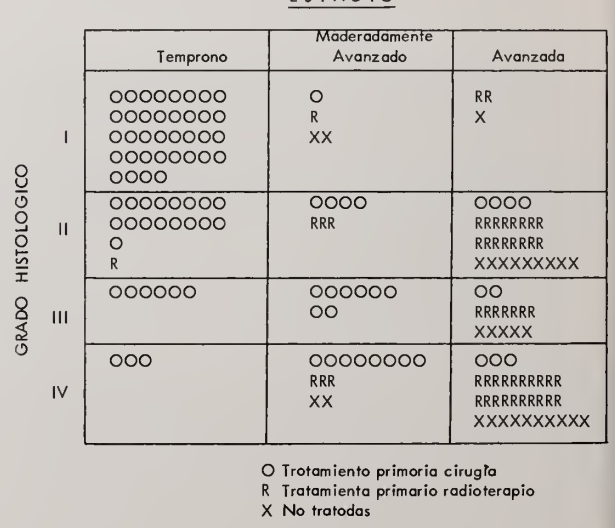
Estadío avanzado: a) Tumores cuya biopsia o especimen quirúrgico mostraba extensión a órganos vecinos y/o a ganglios regionales, b) extensión y/o fijación a las estructuras de la pared pélvica o abdominal, c) metástasis a distancia.

En relación al grado histológico, las lesiones histológicamente benignas se clasifican Grado I y los tumores papilares y transicionales malignos se clasifican Grado II y III. Los carcinomas epidermoides, anaplásicos e indiferenciados se agrupan bajo el Grado IV.

En la Gráfica I podemos ver la distribución de los casos por estadío y grado de diferenciación del tumor y su correlación con la forma de tratamiento primario empleado. Se excluyeron seis pacientes de esta gráfica por motivo de simplificación: un paciente con estadío temprano, grado histológico I que se trató con quimioterapia exclusivamente; otro paciente con estadío moderadamente avanzado Grado II que se trató con radioterapia preoperatoria y cirugía; y cuatro adenocarcinomas todos en estadío avanzado.

El 36 porciento de nuestros pacientes tenían lesiones en estadío temprano, un 18 porciento de las lesiones eran moderadamente avanzadas y un 46 porciento tenían tumores en estadío avanzado.

Si examinamos con más detalle esta gráfica podemos observar cómo los estadíos tempranos generalmente van asociados con grados histológicos bajos y los avanzados con grados histológicos altos. También podemos ver que los casos que tuvieron cirugía como tratamiento primario se agrupan en la parte izquierda y superior de la gráfica, o sea, en estadíos



Gráfica 1: *Distribución por estadío y grado de diferenciación del tumor correlacionados con la forma de tratamiento primario.*

tempranos y grados histológicos bajos, factores relacionados con buen pronóstico, lo que contrasta con los casos enviados a radioterapia para tratamiento primario los cuales en su mayoría tenían lesiones avanzadas y grados histológicos altos, factores de mal pronóstico.

Tratamiento

La cirugía fue el tratamiento primario en 92 pacientes de los 179 en el estudio, o sea, en el 51 porciento de los casos (Tabla IV). Cuarenta y tres de estos pacientes recibieron radioterapia por enfermedad residual o recurrencia después de uno o varios procedimientos quirúrgicos. Solamente 59 pacientes tuvieron una sola intervención quirúrgica, 20 tuvieron dos intervenciones, 8 pacientes tuvieron tres intervenciones y 4 fueron sometidos a más de cuatro operaciones habiendo sido uno de ellos intervenido 13 veces. Los procedimientos quirúrgicos empleados variaron desde 105 resecciones transuretrales y fulguraciones, 31 resecciones parciales y tumorectomías, efectuándose 17 cistectomías parciales y 11 cistectomías totales. En 15 de los 43 pacientes que recibieron radioterapia posoperatoria, el tratamiento de radioterapia fue paliativo. El intervalo transcurrido entre la primera intervención quirúrgica y el envío del paciente a radioterapia varió desde un mes hasta un año o más.

La radioterapia fue el tratamiento primario en 57 pacientes y en 32 de éstos, o sea en el 56 porciento, el tratamiento fue considerado paliativo por encontrarse el paciente en una etapa muy avanzada de la enfermedad o en muy pobre condición general. Solamente 25 pacientes recibieron tratamiento completo de radioterapia con fines curativos y todos ellos fueron tratados con la unidad de ^{60}Co utilizando un campo anterior y otro posterior tratando de cubrir toda la pelvis. Las dosis tumor oscilaron entre 5000 R en 45 días y 7500 R en 80 días.

Un solo paciente recibió radioterapia preoperatoria seguida de cirugía y otro fue tratado exclusivamente con quimioterapia. Veintiocho pacientes no recibieron ningún tipo de tratamiento dado lo avanzado de su enfermedad y su pobre condición general o por rehusar el paciente el tratamiento.

TABLA IV: TRATAMIENTO

Tratamiento	No.	Porciento
Cirugía	92 *	51.0
Radioterapia	57	32.0
Radioterapia pre-operatoria y cirugía	1	0.5
Quimioterapia	1	0.5
No tratados	28	16.0
Total	179	100.0

** - 43 pacientes necesitaron radioterapia para enfermedad residual o recurrencia después de cirugía.*

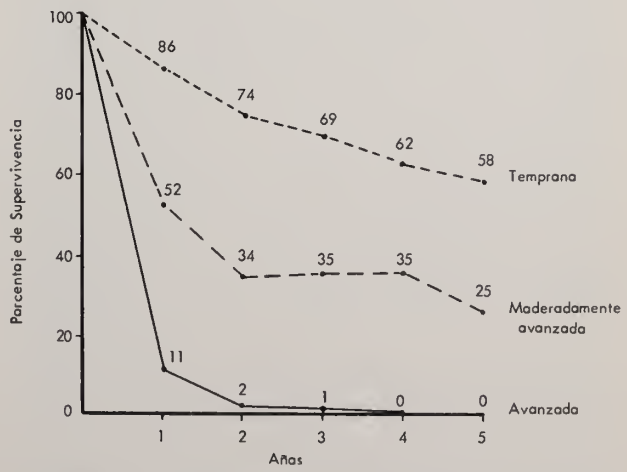
TABLA V: SUPERVIVENCIA DE 1 A 5 AÑOS

Supervivencia	No. Elegible	No. Vivos	Supervivencia
1 año	179	81	45
2 años	173	59	34
3 años	157	51	32
4 años	146	42	29
5 años	132	34	26

Resultados

De los 179 pacientes de nuestro estudio, 157 son elegibles para evaluación de supervivencia a 3 años y 132 son elegibles para 5 años. A 3 años se obtuvo un 32 porciento de supervivencia y a 5 años un 26 porciento, como podemos ver en la Tabla V.

La supervivencia por estadíos está representada en la Gráfica 2. En el estadío temprano el 58 porciento de los pacientes están vivos a los 5 años. En el estadío



Gráfica 2: *Supervivencia en relación al estadío de la enfermedad.*

moderadamente avanzado aproximadamente la mitad de los pacientes mueren en el transcurso del primer año. La mayoría de los pacientes en estadío avanzado mueren durante el primer año y al cabo de 2 años han muerto de la enfermedad el 99 porciento de ellos. Tres pacientes con estadío avanzado que vivieron más de un año habían recibido un curso completo de radioterapia y ninguno de ellos vivió más de 3 años.

La supervivencia a 5 años, en relación con la modalidad de tratamiento la podemos ver en la Tabla VI. Del grupo total de 92 casos tratados con cirugía, sólo 66 son elegibles para evaluación a 5 años y la supervivencia en este grupo fue de 45 porciento. De estos 66 pacientes, 30 tuvieron persistencia o recurrencia de la enfermedad y fueron sometidos a irradiación y 12 de ellos (40 porciento) sobreviven por más de 5 años.

De los 57 casos que recibieron radioterapia como tratamiento primario, 44 pueden ser evaluados para supervivencia de 5 años. Diez y ocho pacientes recibieron tratamiento completo y 4 (22 porciento) sobreviven 5 años o más. En 26 de ellos el tratamiento fue considerado incompleto o paliativo y ninguno sobrevivió más de un año.

La supervivencia de los pacientes que no recibieron ningún tipo de tratamiento fue menor de un año en todos los casos.

La Tabla VII presenta la supervivencia a 3 y 5 años tomando en consideración el estadío de la enfermedad y correlacionándolo con la modalidad de tratamiento empleado. En los estadíos tempranos, 18 de los 30 casos tratados exclusivamente con cirugía sobreviven 5 años o más. Es importante hacer notar que 11 de los 18 pacientes que sobreviven 5 años o más tenían lesiones consideradas como papilomas, Grado I. Diez de los 19 casos que tuvieron cirugía como tratamiento primario y radioterapia posteriormente sobreviven 5 años. Solamente un caso en estadío temprano recibió radioterapia como tratamiento primario y posteriormente, debido a recurrencia, tuvo una cistectomía total y continúa libre de enfermedad después de 5 años. En el estadío moderadamente avanzado ninguno de los casos tratados exclusivamente con cirugía sobrevive 5 años. Solamente viven 2 de los 8 pacientes tratados con cirugía y que posteriormente recibieron algún tipo de irradiación, y 3 de los 5 casos tratados únicamente con radioterapia sobreviven 5 años o más. En el estadío avanzado ningún caso sobrevive no importa la modalidad de tratamiento utilizado.

TABLA VI: SUPERVIVENCIA DE 5 AÑOS EN RELACION A LA MODALIDAD DE TRATAMIENTO

Modalidad de Tratamiento	No.	Vivos	Porciento
Cirugía	66	30	45
Cirugía únicamente	*36*	*18*	*50*
Radioterapia por recidiva o persistencia	*30*	*12*	*40*
Radioterapia	44	4	9
Completa	*18*	*4*	*22*
Incompleta	*26*	*0*	*0*
No Tratados	21	0	0
Total	131 *	34	26

* - *Un caso no tratado en nuestra institución es excluído.*

TABLA VII: SUPERVIVENCIA EN RELACION AL ESTADIO Y TRATAMIENTO

3 Años	Cirugía Unicamente	Cirugía y Radioterapia	Radioterapia Unicamente *
Temprano	26/35	13/22	1/1
Moderado	0/6	5/11	4/6
Avanzado	0/3	0/5	1/15
Total	26/44 (59 porciento)	18/38 (47 porciento)	6/22 (27 porciento)
5 Años			
Temprano	18/30	10/19	1/1
Moderado	0/4	2/8	3/5
Avanzado	0/2	0/3	0/12
Total	18/36 (50 porciento)	12/30 (40 porciento)	4/18 (22 porciento)

* - *Casos que recibieron tratamiento completo solamente.*

Discusión

En este estudio se analizan los resultados obtenidos en el Hospital I. González Martínez en el tratamiento del carcinoma de la vejiga. Aunque los casos estudiados no son representativos del problema de este tipo de

tumor en la comunidad por tratarse de casos referidos con selección previa por parte de urólogos en hospitales generales y práctica privada, nos permiten darnos cuenta del problema que representa el tratamiento del carcinoma de la vejiga en sus etapas avanzadas y de las persistencias y recurrencias después de uno o más procedimientos quirúrgicos.

Los factores más importantes a considerar en el pronóstico y en la elección del método de tratamiento son: el estadío, el tipo y el grado histológico del tumor.

La mayoría de los artículos que se encuentran en la literatura informan resultados para los estadíos tempranos o superficiales que fluctúan entre un 50 porciento y un 80 porciento de supervivencia a 5 años, dependiendo del número de papilomas incluídos en cada serie. Este porcentaje cae abruptamente para los estadíos moderadamente avanzados en los cuales la supervivencia a 5 años es aproximadamente de 20 porciento. En los estadíos avanzados sólo 1 o 2 porciento de los casos viven 5 años. Así que es de gran importancia el evaluar el estadío de la enfermedad para poder hacer una correlación entre los diferentes estudios, y el reportar resultados globales de tratamiento carece de valor. Al evaluar nuestro material se puede ver relación entre el tipo y grado histológico y pronóstico. Estadíos tempranos con grado histológico bajo tuvieron mucho mejor pronóstico que aquellos casos con estadíos avanzados y grados histológicos altos.

Debido a la frecuencia con que estos tumores metastatizan cuando infiltran la mucosa vesical (1, 2, 4, 32, 33, 34), los procedimientos quirúrgicos menores tales como fulguraciones, resecciones transuretrales, tumorectomías, resecciones segmentales y aún hemicistectomías no tienen aplicación en el tratamiento del carcinoma infiltrante de la vejiga, como tampoco el uso de tratamiento localizados con radioterapia tales como implantes con material radiactivo o campos pequeños con radioterapia externa cubriendo únicamente el órgano o parte de él.

En nuestro grupo de pacientes cuyo tratamiento primario fue cirugía y en los cuales la gran mayoría de los procedimientos quirúrgicos empleados fueron de tipo menor, las persistencias y las recurrencias fueron la regla. Solo se practicaron 11 cistectomías totales. De los pacientes en este grupo quirúrgico, 10 están vivos 5 años o más después de un solo procedimiento quirúrgico y 6 de ellos tenían lesiones que deben ser consideradas como papilomas. Ningún paciente con estadío moderadamente avanzado o avanzado, o con tumor cuyo grado histológico fuera mayor de Grado II (carcinomas transicionales Grado III, carcinomas epidermoides, carcinomas anaplásicos e indiferenciados) pudo ser controlado con cirugía solamente, no importa el tipo de operación empleada ni el número de procedimientos quirúrgicos usados.

Con radioterapia, sin embargo, tanto en el grupo de 43 pacientes que la recibió debido a persistencia o recurrencia después de uno o varios procedimientos quirúrgicos, como en los 25 pacientes cuyo tratamiento primario fue radioterapia, se pudo controlar la enfermedad en estadíos tempranos y moderadamente avanzados y se controlaron tumores de todos los tipos y grados histológicos.

En relación con el tratamiento del carcinoma de la vejiga no existe aún uniformidad de criterio y muchos urólogos abogan por las diferentes técnicas quirúrgicas como tratamiento de elección para este tipo de tumor (1-10). Al analizar estas series vemos que los resultados obtenidos se deben primordialmente a la selección y al gran número de lesiones tempranas con grados histológicos bajos, lo que conlleva por sí solo a un buen pronóstico (4). Otros autores, entre ellos un gran número de radioterapeutas, prefieren las técnicas de irradiación para el tratamiento de estos pacientes y se basan en la ventaja de conservar la vejiga, en que los resultados obtenidos en el tratamiento de lesiones tempranas son muy similares a los obtenidos con cirugía, y que en los estadíos moderadamente avanzados (12, 13, 14, 18, 19, 20, 21) y avanzados (17), éstos son aún mejores que los que se obtienen con técnicas quirúrgicas radicales. Se tiene que tomar en consideración, al analizar los resultados de supervivencia, que la selección de casos favorece a la cirugía; en la mayoría de los casos los pacientes son sometidos a múltiples intervenciones quirúrgicas antes de ser referidos a radioterapia, y solamente aquellos pacientes que no son candidatos para cirugía por su edad avanzada o contraindicaciones médicas son referidos para tratamiento primario de radioterapia. En la Tabla VIII se presentan los resultados comparativos de diversas series de casos tratados por métodos quirúrgicos y de irradiación con técnicas de supervoltaje.

En la actualidad se está tratando de combinar estos distintos métodos de tratamiento, seleccionando mejor los casos para una u otra técnica esperando así mejorar los resultados. El uso de agentes quimioterapeúticos agregados a la radioterapia y cirugía está bajo estudio con resultados prometedores (25, 27).

TABLA VIII: RESULTADOS COMPARATIVOS DE IRRADIACION Y CISTECTOMIA

Autor	Tratamiento	No. Casos	Resultados de 5 años por estadío O-A-B_1	B_2-C	D_1-D_2
Jewett *et al* (34)	Cistectomía	71	50 porciento	16-12 porciento	-
Jewett *et al* (34)	Resección parcial	133	58 "	16 "	-
Bowles *et al* (5)	Cistectomía	70	52 "	30 "	-
Whitmore & Marshall (7)	Cistectomía	230	47 "	14 "	3 porciento
Caldwell *et al* (18)	Radioterapia	73	50 "	20 "	0 "
Friedman (13)	Radioterapia	31		16 "	0 "
Crigher *et al* (19)	Radioterapia	126	32 "	28 "	6 "

Resumen

Se revisa la experiencia del Hospital I. González Martínez en 194 casos de cáncer de la vejiga admitidos durante los años 1950 a 1965, inclusive y se analizan 179 casos con confirmación histológica.

Del grupo total, 132 pacientes pueden ser analizados para supervivencia de 5 años y ésta fue de 26 porciento. En estadíos tempranos el 58 porciento de los pacientes están vivos a los 5 años. Se trataron con cirugía 66 casos, siendo la supervivencia en este grupo de 45 porciento. Treinta pacientes tuvieron recurrencia de la enfermedad después de cirugía y fueron sometidos a irradiación, 12 de ellos (40 porciento) sobreviven 5 años o más.

Los casos en estadíos avanzados fueron tratados inicialmente con radioterapia; 44 casos recibieron radioterapia como tratamiento primario. En la mayoría de los casos la radioterapia fue paliativa y solamente en 18 el tratamiento se consideró completo y de ellos el 22 porciento sobrevive 5 años.

Los resultados obtenidos en el tratamiento del carcinoma de la vejiga son pobres, ya que la mayoría de los casos son diagnosticados en etapas muy avanzadas de la enfermedad. Consideramos que la colaboración de cirujanos y radioterapeutas en la evaluación y tratamiento de cada uno de estos pacientes pueden llevar a mejorar los resultados obtenidos.

Summary

The experience at the I. González Martínez Hospital with 194 cases of cancer of the urinary bladder between the years 1950 and 1965, inclusive, was reviewed. A total of 179 cases with histologic proof of malignancy were analyzed.

The survival in 132 cases eligible for 5 year analysis was 26 percent. Twenty nine (58 percent) of the 50 early stage cases were alive at 5 years. Sixty six cases were treated by surgery and the results in this group were 45 percent. Thirty cases recurred after surgery and were further submitted to irradiation, of which twelve (40 percent) survived 5 years.

Advanced cases were primarily treated with irradiation. Forty four cases received radiotherapy as primary treatment. In most of these cases the treatment was considered palliative. Only 18 cases received complete radiotherapy, and of these 4 cases (22 percent) survived 5 years.

The results of treatment in cancer of the urinary bladder are quite poor since the majority of the cases are diagnosed at an advanced stage of the disease. We believe that collaboration between surgeons and radiotherapists in the evaluation and treatment of each of these patients would lead to improvement in the results obtained.

References

1. *Colston, J. A. and Leadbetter, W. F.:* Infiltrating carcinoma of the bladder. J. Urol., 36: 669, 1936.
2. *Leadbetter, W. F. and Cooper, J. F.:* Regional gland dissection for carcinoma of the bladder: A technique for one-stage cystectomy, gland dissection, and bilateral uretero-enterostomy. J. Urol., 63: 242, 1950.
3. *Marshall, V. F. and Whitmore, W. F.:* Simple Cystectomy for cancer of the urinary bladder: One hundred consecutive cases: Two years later. J. Urol., 63: 232, 1950.
4. *Jewett, H. J.:* The surgical treatment of carcinoma of the bladder. J. Urol., 79: 87, 1957.
5. *Bowles, W. T. and Cordonnier, J. J.:* Total cystectomy for carcinoma of the bladder. J. Urol., 90: 731, 1963.
6. *Cordonnier, J. J.:* Cystectomy in the management of carcinoma of the urinary bladder. Postgrad. Med. J., 41: 469, 1965.
7. *Whitmore, W. F., Jr. and Marshall, V. F.:* Radical total

cystectomy for cancer of the bladder: 230 consecutive cases five years later. J. Urol., 87: 853, 1962.

8. *Masina, F.:* Segmental resection for tumors of the urinary bladder: Ten-year follow-up. Brit. J. Surg., 52: 279, 1965.
9. *Stone, J. H. and Hodges, C. V.:* Radical cystectomy for invasive bladder cancer. J. Urol., 96: 207, 1966.
10. *Brice, M.:* Radical Total Cystectomy for Cancer of the Bladder: 10 Years Later. Fifth National Cancer Conference Proceedings, 303-304, 1964, J. B. Lippincott Co., Phila.
11. *Buschke, F. and Cantril, S. T.:* Roentgentherapy of carcinoma of the urinary bladder: Analysis of 52 patients treated with 800 K. V. roentgentherapy. J. Urol., 48: 368, 1942.
12. *Cuccia, C. A., Jones, S., and Crigler, C. M.:* Clinical impressions in 100 consecutive cases of carcinoma of the urinary bladder treated by supervoltage. J. Urol., 79: 99, 1958.
13. *Friedman, M.:* Supervoltage (2-Mvp) rotation irradiation of cancer of the bladder. Radiology, 73: 191, 1959.
14. *Browne, H. H., Ogden, R. T.:* Rotational cobalt 60 teletherapy of vesicle cancer. Am. J. Roentgenol., 83: 107, 1960.
15. *Ellis, F.:* Bladder neoplasms – the challenge to the radiotherapist. Clin. Radiol., 14: 1, 1963.
16. *Frank, H. G.:* The radiological assessment of bladder tumors. Part 2. Radiotherapy. J. Urol., 92: 484, 1964.
17. *Del Regato, J. A., Chahbazian, C. M.:* Radiotherapy for transitional cell carcinoma of the urinary bladder with cobalt 60. Radiology, 87: 1053, 1966.
18. *Caldwell, W. L., Bagshaw, M. A., Kaplan, H. S.:* Efficiency of linear accelerator X-ray therapy in cancer of the bladder. J. Urol., 97: 294, 1967.
19. *Crigler, C. M., Miller, L. S., Guinn, G. A., Schillaci, H. G.:* Radiotherapy for carcinoma of the bladder. J. Urol., 96: 55, 1966.
20. *Morrison, M., Deeley, T. J.:* The treatment of carcinoma of the bladder by supervoltage X-rays. Brit. J. Radiol., 38: 449, 1965.
21. *Buschke, F., Jack, G.:* Twenty-five years experience with supervoltage therapy in the treatment of transitional cell carcinoma of the bladder. Am. J. Roentgenol., 99: 387, 1967.
22. *Edsmyr, F., Jacobsson, F., Dahl, O., Walstam, R.:* Cobalt 60 teletherapy of carcinoma of the bladder. Acta Radiol., 6: 81, 1967.
23. *Whitmore, W. F., Phillips, R. F., Brabstald, H., Bronstein, E. L., Mackenzie, A. R., Hustu, O.:* Experience with preoperative irradiation followed by radical cystectomy for the treatment of bladder cancer. Am. J. Roentgenol., 90: 1016, 1963.
24. *Wizenberg, M. J., Bloedorn, F. G., Young, J. D., Jr., Galleher, E. P., Jr.:* Radiation therapy and surgery in the treatment of carcinoma of the bladder. Am. J. Roentgenol., 96: 113, 1966.
25. *Veenema, R. J., Guttmann, R., Uson, A. C., Sagerman, R. H., Dean, A. L., Ciardullo, L.:* Combined radiotherapy, surgery, and chemotherapy in carcinoma of the bladder. Cancer, 20: 1879, 1967.
26. *DeWeerd, H. H., Colby, M. Y.:* Bladder carcinoma, combined radiotherapy and surgical treatment. JAMA, 199: 145, 1967.
27. *Stein, J. J., Kaufman, J. J.:* The treatment of carcinoma of the bladder with special reference to the use of preoperative radiation therapy combined with 5-Fluorouracil. Am. J. Roentgenol., 102: 519, 1968.
28. *Whitmore, W. F., Grabstald, H., Mackenzie, A. R., Iswariah, J., Phillips, R.:* Preoperative irradiation with cystectomy in the management of the bladder cancer. Am. J. Roentgenol., 102: 570, 1968.
29. *Wallace, D.:* Cancer of the bladder. Am. J. Roentgenol., 102, 581, 1968.
30. *Marshall, V. F.:* Current clinical problems regarding bladder tumors. Cancer, 9: 543, 1956.
31. *Whitmore, W. F.:* Cancer of the Bladder. International Cancer Congress, London, July 1958.
32. *Jewett, H. J. and Strong, G. H.:* Infiltrating carcinoma of the bladder: Relation of depth of penetration of the bladder wall to incidence of local extension and metastasis. J. Urol., 55: 366, 1946.
33. *Baker, R.:* Correlation of circumferential lymphatic spread of vesicle cancer with depth of infiltration – Relation to present methods of treatment. J. Urol., 73: 681, 1955.
34. *Jewett, H. J., King, L. R., Shelley, W. M.:* A study of 365 cases of infiltrating bladder cancer: Relation of certain pathological characteristics to prognosis after extirpation. J. Urol., 92: 668, 1964.

INSIDIOUS ARSENIC POISONING

Sidney Kaye, MSc, PhD

Arsenic, publicized since the first century as a poison, is still very much with us today as a menace. Although arsenic poisoning most often is accidental, it can be the cause of occupational, suicidal and even homicidal deaths. The onset and its clinical course is usually vague, and the diagnosis therefore may be sometimes overlooked because of non descript signs and symptoms that are not immediately correlated.

Because of possible exposure to arsenic (it is not uncommon), and because of the ease and simplicity of available chemical tests, all patients with unexplained gastrointestinal upsets should be tested for the possibility of arsenic poisoning.

The following resume is offered as a refresher.

Properties, Derivatives and Uses

Properties: Odorless, tasteless, compounds usually are white with the exception of copper or sulfur compounds. Combines with tissue sulfhydryl groups.
Uses: Rodenticide, paints, tanning materials, insecticide, weed and tree killer, cattle dip, fungicide, wood and taxidermy preservative. Because arsenic is very effective for the above uses and is relatively inexpensive, it is then no wonder that it is found in many homes and industries.
Derivatives: Fowler's solution, lead arsenate, arsenical soaps, arsenic oxide, organic arsenicals, copper arsenite (Paris green), cocodylates, iron arsenate, arsenic iodide, Donovan's solution, arsine, calcium arsenate.
MLD: Approximately 200 mg per 150 lb. man, as As_2O_3; trivalent is more toxic than pentavalent; organic compounds are less toxic; Arsine is the most toxic derivative.

From the Institute of Legal Medicine, University of Puerto Rico School of Medicine, San Juan, P. R.

So called "tolerance" (Tyrol) is unlikely but some *degree of effect* may be due to altered rate of absorption, cumulation, and rate of elimination. Arsenic can kill very quickly, within 1 hour; or within several hours; within 24 hours; within 5 days; or death can be delayed 1 week, 1 month, or even 1 year.

Arsenic was the poison of choice of the "professional poisoners" because chronic small doses may produce confusing progressive debilitation, prior to a delayed death. Small doses are tasteless, odorless, and colorless. Chronic poisoning may be easily obscured.

Acute Intoxication (1)

An explosive gastroenteritis may be produced suddenly or may be delayed about half hour or more. The following signs and symptoms may follow, in no fixed pattern: metallic taste, constriction of the throat (dysphagia), hoarse voice, nausea, persistent vomiting, "rice water stools" developing into bloody diarrhea, blisters of epithelium and sloughing of parts, severe abdominal pain: garlic odor to the breath, salivation, thirst, oliguria, capillary oozing (increased permeability), bloody vomitus (looks like cholera), gastric dilatation, pallor, hyperpyrexia, moist skin, tremors, convulsions; shock via loss of fluids, electrolytes and proteins; hypotension. Death usually occurs in less than 15 hours due to circulatory collapse.

Delayed symptoms of acute intoxication may include loss of hair (which grows back, with recovery), brittle fingernail and deformities, "Mees" lines which start to form when nail bed is in contact with blood circulation (time of arsenic exposure), hoarse voice, cough, motor paralysis and neuralgic pain.

Chronic Intoxication

With small continuous exposure there usually follows (but in no fixed pattern) anorexia, nausea, vomiting, nose bleeds and bleeding gums, conjunctivitis, "Mees" lines, thirst, coryza, hoarseness, coughing, der-

matitis, severe skin exfoliation, low grade fever, weight loss, stomatitis, salivation, hyperkeratosis of the palms and soles, brittle nails, edema of the ankles and lower eyelids and progressive vague weakness. There may be increased pigmentation known as "arsenic melanosis" seen on the neck, eyelids, or nipples, garlic odor to breath, renal damage, anuria, hepatic damage and degeneration, jaundice, motor paralysis, tingling of skin of extremities, peripheral neuritis of hands and feet, (extremities more involved), foot drop, wrist drop, loss of hair, tremors, colitis, anoxic convulsions, spinal cord involvements.

Identification

Vomitus, gastric lavage, urine, blood, powder, tablets, residues, hair or fingernail, may be tested for presence of arsenic.

Qualitative (2):

Approximately 20 ml of gastric lavage, vomitus, urine, or powders, tablets or residues dissolved or suspended in 20 ml of water is placed into a small Erlenmeyer flask. Four ml of hydrochloric acid is added. A small clean copper strip (5 x 10mm) is washed and then introduced into the flask, (if copper sheet is not available, a small copper wire coil may be used, or as a last resort a clean copper penny. The solution is *gently* heated for about an hour, then the copper is removed and examined. A silver deposit may indicate mercury; a dark deposit may indicate arsenic, bismuth or antimony. The black arsenic deposit is very sensitive and is visible to as low as 0.010 mg of arsenic. An estimation may be made by comparison with standards prepared in a similar fashion, as follows:

Arsenic – dull black - sensitive to - 0.010 mg.

Bismuth – shiny black - sensitive to - 0.020 mg.

Antimony – dark purple sheen - sensitive to - 0.020 mg

The arsenic dull black deposit is confirmed by placing the copper and deposit into 2 ml of 10 percent potassium cyanide. If the black deposit is due to arsenic, it will dissolve. The black deposit, however, if due to bismuth or antimony will persist.

Quantitative (3, 4):

a) A fresh copper strip with the arsenic deposit is prepared as described above.

This copper (black deposit) is placed into a modified Gutzeit apparatus (See figures 1 and 2).

The rubber stopper in the flask supports a small drying tube trap into which is placed a cotton pledget, moistened with lead acetate solution. Above this tube is attached a set of flanges between which is placed a disc of mercuric bromide-sensitized filter paper. This is prepared by cutting a round disc of Whatman No. 40 filter paper which is impregnated with 5 percent mercuric bromide in 95 percent alcohol for about 3 minutes. After drying the droplets, the disc is fastened between the flanges with a rubber band.

The apparatus is charged with a few small pieces of mossy zinc (arsenic free), and 2 drops of (40 percent) stannous chloride (prepared in 50 percent hydrochloric acid, and 2 drops of 20 percent potassium iodide and 15 ml of 10 percent sulfuric acid). The generation of hydrogen and arsine (AsH_3) is then allowed to proceed for about 1 hour. Do not allow gas to generate too rapidly. If too rapid, cool in an ice bath and again allow to proceed more slowly. The liberated hydrogen forms arsine on reacting with the deposited arsenic. Arsine travels upward and any impurity

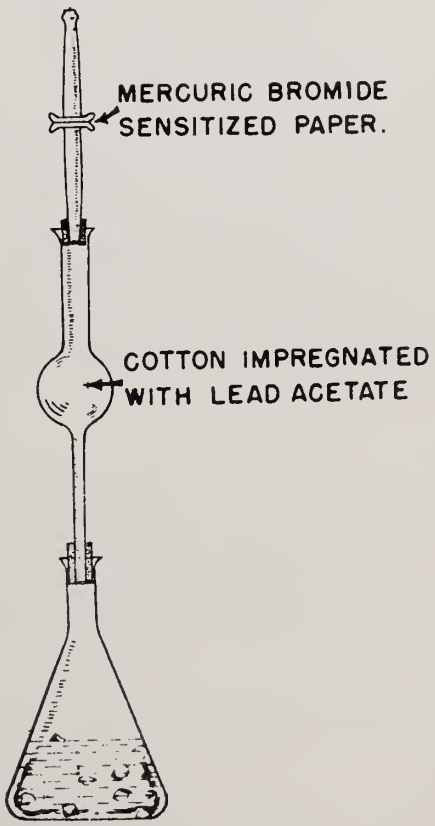


Fig. 1: *Modified Gutzeit apparatus used for the quantitative determination of arsenic.*

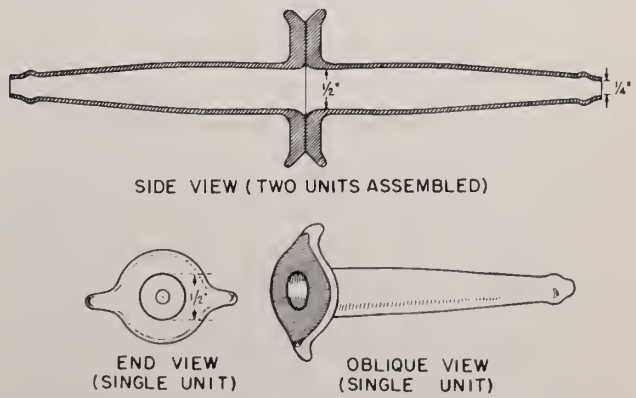


Fig. 2: *Flanges of the modified Gutzeit apparatus.*

of hydrogen sulfide is removed by passing through the lead acetate moistened cotton. Arsine contacting the mercuric bromide paper, turns it a clear canary-yellow to orange-brown color. The range in the yellow is very sensitive and is directly proportional to the arsine liberated.

This test is specific for arsenic and is sensitive to 0.005 mg. However, since only approximately 50 percent of the arsenic present can be recovered by this deposition method, it is suggested that a factor of two (2x) be used to compensate for the partial recovery. The most accurate estimations may be obtained by reacting standards containing 0.005 - .040 mg arsenic and comparing with unknowns.

b) One hundred ml of urine, 10 ml of blood or several grams of hair, or finger and toe nails, (or vomitus, powders, residues, etc.) is digested with nitric acid, sulfuric acid and perchloric acid (1). Make certain all the nitric and perchloric acid is removed by heating. The digest is cooled and residual sulfuric acid volume is estimated, and then sufficient water is added to make the final solution approximately 10 percent sulfuric acid (ten fold dilution). A measured aliquot (no more than 15 ml) is added to a Gutzeit apparatus described above. This test is sensitive to 0.0005 mg of arsenic. There is a well defined increase in yellow intensity which is directly proportional to the concentration of arsenic up to about 0.015 mg when the disc turns orange to brown. These yellow discs should be compared with standards similarly prepared.

Interpretations

Normally there are small traces of arsenic in blood, urine, hair and finger and toe nails, but these are very low and will not be detected with the tests described above using the sample size suggested. Frequent analysis of *all* reagents is necessary to rule out contamination.

Normal arsenic concentration in urine is less than 0.005 mg/100 g: in hair or fingernails, less than 0.003 mg/1 g.

Stomach contents should be examined for crystals and color, *i.e.:* green is suggestive of Paris green; yellow of arsenic sulfide; white of the trioxide. Arsenic trioxide is the most common.

Treatment (1, 5, 6, 7)

The stomach is lavaged with warm milk and water. This is followed with sodium sulfate (30 g) as a cathartic. Keep patient warm and quiet, and maintain body heat, fluids and electrolyte balance. Sedation or morphine may be given for pain; combat shock. Diet should be maintained high in glucose and low in fat as a precaution against possible liver damage. Calcium gluconate, methionine, and B-complex vitamins are useful as supplement. Artificial respiration, oxygen therapy, whole blood, or fluids are given as needed. Appropriate measures for anuria, pulmonary edema, dehydration, or liver involvement are taken as needed.

Dimercaprol (BAL) is given by intramuscular injection, 2.5 mg/kg or 0.025 ml/kg, (*e. g.* 1.8 ml for a 75 Kg man), repeated at 4 hour intervals for a total of 4 to 6 injections. Then 2 daily injections are given for about 5 to 10 days. Consult the literature accompanying the vial for details. BAL sometimes produces side reactions; 50 mg of Benadryl given prior appears to eliminate or minimize these. BAL effectively hastens the removal of arsenic from cellular sulfhydryl groups so that it is more rapidly eliminated from the body.

Urine or blood should be analyzed periodically to determine the rate of arsenic elimination. This will help check the effectiveness of treatment, and can be correlated with clinical observations. Blood arsenic levels will become relatively low, whereas urine levels may be high for at least 10 days. In chronic exposure, the urine may be positive for months.

Symptoms and treatment for selenium are generally similar to arsenic. Soluble selenium compounds are highly toxic, whereas insoluble selenium sulfide is less toxic. Tellurium is less toxic than selenium.

Summary

Arsenic is an effective chemical ingredient in many household and industrial products and is therefore a constant potential exposure at home or at work. It is still used for homicides as it was in the Middle Ages.

The diagnosis of arsenic poisoning is not always simple and may sometimes be overlooked. Chemical confirmation can be easily made and is rapid and reliable. Appropriate simple chemical tests have been described in detail.

It would be a good practice to rule out possible arsenic poisoning on all *unexplained* gastrointestinal upset.

Once the diagnosis of arsenic poisoning is made, the use of British Anti Lewisite (BAL) is specific and will at least minimize tissue damage and may even be life saving.

The properties, and uses, of arsenic and the symptoms, rapid identification and determination and treatment (both general and specific) of arsenic poisoning have been discussed.

Resumen

El arsénico es un ingrediente químico efectivo en

muchas casas y productos industriales y es por eso que estamos constantemente expuestos tanto en nuestros hogares como en el trabajo. Es usado por los homicidas ahora al igual que en la Edad Media.

El diagnóstico para envenenamiento por arsénico no siempre es simple y muchas veces pasa desapercibido. La confirmación química puede ser fácilmente hecha y es rápida y digna de confianza. Exámenes apropiados químicos simples han sido descritos en detalles.

Sería buena idea eliminar la posibilidad de arsénico en todos los casos en que hubiera desórdenes gastrointestinales no explicables.

Una vez hecho el diagnóstico de envenenamiento por arsénico el uso de "British Anti Lewisite" (BAL) es específico y ayudaría a los tejidos dañados y hasta puede ser el "salvavidas" en este caso.

Las propiedades, usos, y síntomas, la rápida identificación y determinación, tratamiento (ambos general y específico) han sido discutidos.

References

1. *Kaye, S.:* Handbook of Emergency Toxicology, C. C. Thomas, 2nd. Ed., Springfield, Ill., 1961.
2. *Kaye, S.:* A simple test for the detection of arsenic in body fluids. Amer. J. Clin. Path., 14: 3, 1944.
3. *Kaye, S.:* A rapid and specific method for the detection and estimation of mercury, bismuth and arsenic in body fluids. Amer. J. Clin. Path., 14: 83, 1944.
4. *Kaye, S.:* A simple and rapid method for the detection and estimation of mercury, bismuth, arsenic, antimony, selenium, and tellurium in biologic materials. Amer. J. Clin. Path., 35: 146, 1956.
5. *Goodman, L., and Gilman, A.:* The Pharmacological Basis of Therapeutics, The MacMillan Co., 3rd Ed., New York, 1967.
6. *Cutting, W.:* Handbook of Pharmacology, Appleton-Century-Crafts, 3rd., Ed., N. Y., 1968.
7. *Dresibach, R. H.:* Handbook of Poisoning, Lange Medical Publications 4th. Ed., Los Altos, California, 1967.

THALASSEMIA MINOR AND INFECTION

R. Menéndez-Corrada, MD
Aida Fernández, BS, MT
Amina R. de Sala, MT, MS

The thalassemia trait is probably infrequent in Puerto Rico, notwithstanding the ethnic background of our population. To our knowledge, there are only two reports in our medical literature dealing with cases of thalassemia. Prado, Santana and Rodríguez reported a family with sickle cell thalassemia disease in 1964 (1), and Torregrosa, Cintrón-Rivera and Guzmán-Acosta presented a case of thalassemia major in 1962 (2), and then published a more detailed report in 1965 (3).

The present communication deals with the case of another Puerto Rican with thalassemia, this time the minor form, who developed moderately severe anemia associated with an abscess in an axilla.

Case Report

A 35-year old salesman was admitted to the Veterans Administration Hospital, on January 26, 1967 with fever, chills, general malaise and a painful mass on the right axilla. The onset of illness occurred about two weeks previous to admission when he claimed that he slipped and fell on the floor at work hurting his back. The next day the right shoulder also hurt and two days later chills, fever and a tender mass on the right axilla appeared. He was hospitalized in Caguas and by that time he noticed a very dark urine. He was treated with penicillin discharged 12 days later and referred to a local dispensary for continuation of therapy. Three days later he reported to the Veterans Administration Regional Office dispensary because the chills, fever and the tender axillary mass had reappeared. He was found to have anemia and was hospitalized.

He had been hospitalized twice before while serving in the U. S. Army between 1955 to 1958. After discharge from the Army he underwent a cholecystectomy for stones in 1959. There was a history of river bathing in Caguas, Puerto Rico, but schistosomiasis had never been found. Ever since 1959 his health had been good.

His father was 65 years old and suffered from coronary artery disease. His mother died postpartum. He had three full siblings, all living and well. There were five other half-brothers also living and well.

On physical examination we found a well-developed fairly well nourished young man, 5' 9" tall and weighing 136 lbs. His color was a peculiar ashen-gray. This pigmentation was particularly striking in the face. The conjunctiva was slightly icteric. There was a tender palpable spleen about 3 inches below the left costal margin. There was a well-healed midrectal abdominal scar. In the right axilla there was a tender, reddened mass about 2 inches across.

The laboratory work-up revealed an RBC of 4,320,000/cu.mm, an hematocrit of 30.5 percent, and a hemoglobin of 8.4 g/100ml; the WBC was 7,550/cu.mm; neutrophils, 59 percent; bands, 4 percent; lymphocytes, 27 percent; monocytes, 5 percent; and eosinophiles, 5 percent. The platelet count was 282,000/cu.mm. It was noticed that there was marked aniso and poikilocytosis with microcytosis and hypochromia of the erythrocytes (See Fig. 1). The urine showed occasional red cells. The VDRL was negative, the stools were negative for ova and parasites. The BUN was 16.8 mg/100ml. The total bilirubin was 6.8 mg/100ml, with no direct reacting fraction. The Coombs' test was negative. The serum proteins revealed an albumin of 3.1 g/100ml and globulins of 3.45 g/100ml. The reticulocyte count was 2.3 percent. Stools for occult blood were negative. The circumoval test for schistosomiasis was negative. The plasma iron was 35 ug/100ml. Ten days later

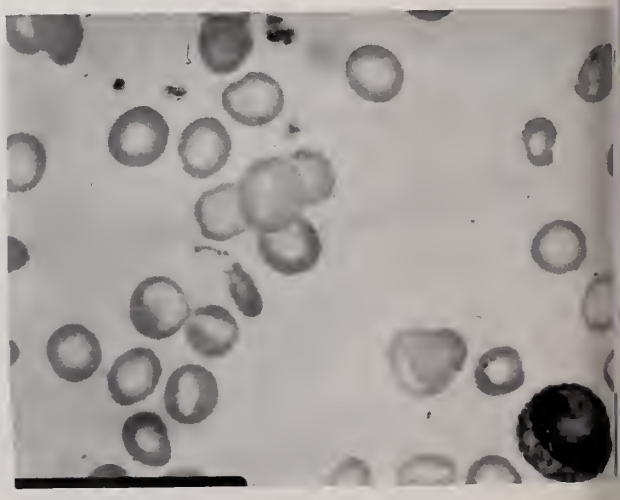


Fig. 1: *Patient's peripheral blood smear, Wright's stain.*

From the Medical Service and the General Medical Research Laboratory, Veterans Administration Hospital, San Juan, Puerto Rico.

Presented at the Annual Meeting of the Puerto Rico Medical Association, Hotel San Juan, November 17, 1967.

the plasma iron was 117 µg/100ml and the unsaturated plasma iron binding capacity was 150 µg/Fe/100ml. The X-ray of chest was negative. Barium swallow study was negative for esophageal varices.

For a while the patient was observed on symptomatic treatment. We considered iron deficiency, lymphoma and a hemoglobinopathy in the differential diagnosis. Then his U. S. Army medical records arrived to dispel our doubts. In 1958 in Walter Reed Army Hospital a diagnosis of thalassemia minor had been made on this patient on the basis of the hemoglobin-AF pattern. Our tests confirmed this diagnosis (See Table I). The combination of hypochromic anemia with increased resistance to hypotonic fragility associated with splenomegaly plus the iron-laden hyperplastic marrow, the abnormal increases in fetal hemoglobin and hemoglobin A_2, the absence of sickling and the family studies (Table II), permit us to make that diagnosis with confidence.

The abscess soon fluctuated and incision and drainage was performed. The pus was sterile, but he was nevertheless treated with antibiotics. After the abscess healed he improved rapidly. The hemoglobin went up and when he left the hospital he already had 11.8 g/100ml. The hypochromia, poikilocytosis and target cells persisted.

Comments

The diagnosis of thalassemia major does not usually present any difficulties whereas that of thalassemia minor is sometimes quite difficult. The anemia in thalassemia minor may be hardly detectable or it may approach the severity of that in thalassemia major. Severe anemia in thalassemia minor may be due to pregnancy or, as this case illustrates, infection. There is no special test to guide us here as there is in sickle cell disease and one must rely on the clinical picture, the peripheral smear, the evidence of hemolysis, the family studies and the increase in fetal hemoglobin. An increase in hemoglobin A_2 usually distinguishes thalassemia minor from major, but sometimes this increase is not present. Even when it is present it is not unique for thalassemia minor for elevated hemoglobin A_2 values have also been reported in iron deficiency anemia (4), pernicious anemia in relapse, Hemoglobin-Zurich, recipients of fetal hemopoietic tissue, and malaria (5).

TABLE I: SPECIAL STUDIES

Test	Results
Osmotic fragility	Hemolysis began at 0.45 percent saline; complete at 0.10 percent; Control: began at 0.45 percent; complete at 0.30 percent.
Urine siderocytes (Prussian blue)	Positive
Sickling (Sod. bisulfite)	Negative
Tests for G6PD:	
Fairbanks-Beutler spot test (Calbiochem)	Negative
Motulsky (Sigma	Negative
Dern test (Heinz bodies)	16 percent; (Control, 12 percent)
Fetal hemoglobin:	
Alkali denaturation	5 percent
Betke test	Positive
Starch block hemoglobin * electrophoresis	Hemoglobin A_2, 13.1 percent (Normal usually < 3 percent)
Bone marrow	Reactive normoblastic hyperplasia Reticuloendothelial siderosis

* - *Study performed by Dr. A. Barquet-Chediak*

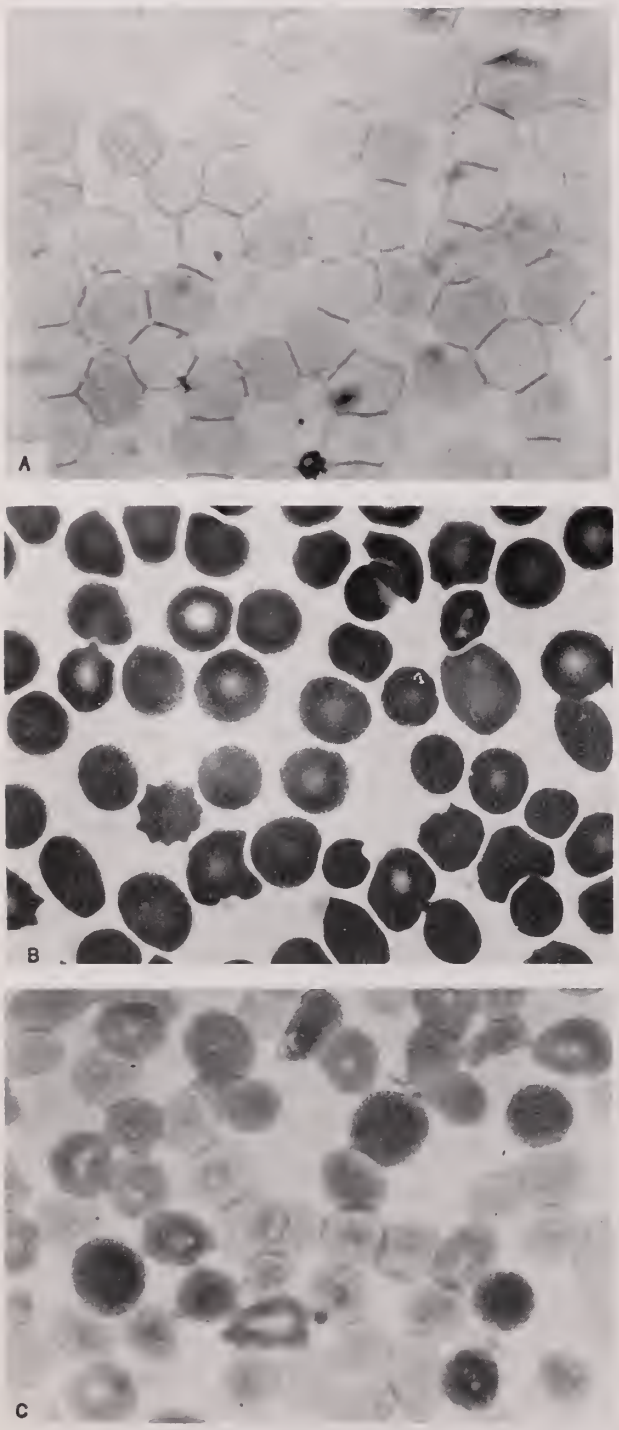


Fig. 2: *Betke's technique for fetal hemoglobin. The fetal hemoglobin content of the RBC determines its color density. A. Control. Normal adult's RBC, less than 0.8 percent Hb F. B. Control. Fetal (cord blood) RBC. All cells have above 50 percent Hb F. C. Patient's RBC. About 2-5 percent Hb F.*

The accepted view nowadays is that the basic disability in thalassemia does not consist in the production of an abnormal hemoglobin, as it happens in the hemoglobinopathies, but in the failure to produce red cells with a normal adult hemoglobin content. Thus thalassemia, like iron deficiency, is also a hypochromic anemia. Hypochromia denotes a deficiency of hemoglobin; in the case of iron deficiency heme production is interferred with, while in thalassemia there is a deficiency in globin production. Difficulties in differentiating the two conditions may arise particularly when the thalassemia is rendered hyposideremic by pregnancy or infection. In those cases it is said that the Wintrobe indices help, whereas the MCH is equally low in both conditions, the MCHC is much lower in pure iron deficiency anemia (6).

The terms major and minor denote different things to clinicians and genecticists. To the latter, major means the homozygous, while the minor is the heterozygous form. In clinical practice the terms usually denote different levels of severity of the clinical picture.

The present trend is to classify the disease according to the type of polypeptide chain that the organism is unable to produce. Thus we have α and β thalassemias — the latter is the classical Mediterranean anemia. Alpha-thalassemia will depress the production of α-chains while β-thalassemia will depress the production of β-chains. Both may occur in a major (homozygous) and a minor (heterozygous) form. There is still another type of α-thalassemia called hemoglobin H disease, which is a combination of heterozygous α-thalassemia and a third gene that results in a pronounced deficiency of α-chain production. Our propositus may be classified, according to current terminology, as a case of β-thalassemia minor.

One wonders at the scarcity of thalassemia in our population. Is it that the diagnoses are being missed? Is it that our Spanish forebears did not come from the Mediterranean basin? Or is it due to the abundant Negro element in our population? It is said that whenever the incidence of HbS is high, thalassemia is low and viceversa (6), but the sickle cell trait incidence in Puerto Rican negroes appears to be lower than in negroes elsewhere (7).

The Dutch hematologist Sijperstein has related thalassemia to increased iron absorption (8). The persistence and prevalence in some areas of a condition that in its homozygous form kills before the childbearing age, is explained on the protection that the heterozygous form confers against iron deficiency (ba-

TABLE II: STUDIES IN FAMILY

Relation	Peripheral Smear	Hemoglobin F (Percent) *
Father	Normal	1.6
Sister	Hypochromia, target cells, anisocytosis, poikilocytosis	5.0

** Alkaline denaturation*

lanced polymorphism). This should be particularly important in primitive hookworm-ridden populations and on the basis of this theory we would have predicted that the incidence of the thalassemia trait would be high in Puerto Rico where hookworm disease was the scourge of the countryside until our own generation.

Summary

We have presented a case of a Puerto Rican with thalassemia minor. His anemia became aggravated while he had an abscess in an axilla and it improved and became mild when the abscess was cured. Present concepts of the disease and some aspects of the thalassemia problem that are relevant to the Puerto Rican situation are discussed.

Resumen

Presentamos el tercer caso de una familia puertorriqueña con talasemia. El paciente, veterano de 35 años, desarrolló un absceso en la axila derecha y al hospitalizarlo se le encontró una severa anemia hipocrómica y esplenomegalia. Estudios posteriores demostraron que se trataba de una anemia hemolítica asociada con sideremia normal y gran retención de hierro en el tuétano. Se eliminaron las posibilidades que tuviera drepanocitosis y deficiencia de dehidrogenasa del fosfato de glucosa de los eritrocitos. El diagnóstico se estableció por la persistencia de un 5 porciento de hemoglobina fetal y un 13 porciento de hemoglobina A_2 en la sangre. Estudios en la familia indicaron que el padre estaba exento de la enfermedad pero sí la había en algunos hermanos, y presumimos que la herencia de talasemia les vino por la madre, que ya había muerto. Bastó con drenar y curar el absceso de la axila al paciente para que la hemoglobina subiera, sin hematínicos, de 8.4 gramos por 100 ml de sangre que trajo al llegar a 11.8 gramos al darse de alta. Consideramos el caso uno de beta talasemia menor. Comentamos brevemente sobre algunos problemas del diagnóstico y sobre el concepto actual de la naturaleza de la enfermedad. Hacemos hincapié en el hecho de que el rasgo talasémico parece ser relativamente raro en Puerto Rico a pesar de nuestro fuerte patrimonio racial mediterráneo, y a pesar de que en Puerto Rico hasta nuestros tiempos ha prevalecido la uncinariasis como enfermedad endémica en nuestros campos. Estas circunstancias debían favorecer la persistencia del rasgo talasémico ya que según Sijpesteijn éste protege de la deficiencia de hierro.

References

1. *Prado, C., Santana, G. O. and Rodríguez, H. F.:* Depranocitemia-Thalassemia: Informe de primeros casos en Puerto Rico. Bol. Asoc. Méd. P. Rico 56: 177, 1964.
2. *Torregrosa, Mercedes V. de, Cintrón-Rivera, A. A., and*

Guzmán-Acosta, C.: Thalassemia major in a Puerto Rican boy. Regional Meeting of the American College of Physicians, San Juan, P. R., 1962.

3. *Torregrosa, Mercedes V. de, Cintrón-Rivera, A. A., and Guzmán-Acosta, C.:* Thalassemia major in a Puerto Rican boy. Bol. Asoc. Méd. P. Rico, 51: 582, 1965.
4. *Beaven, G. H., Dixon, G., and White, J. C.:* Studies in thalassemia-like anemias in pregnant immigrants in London. Brit. J. Haemat. 12: 777, 1966.
5. *Arends, T.:* High concentrations of haemoglobin A_2 in malaria patients. Nature 215: 1517, 1967.
6. Lehmann and Huntsman, Man's Hemoglobins, J. B. Lippincott Company, 1966, p. 165.
7. *Menéndez-Corrada, R.:* Hemoglobin survey in San Patricio Hospital. Bol. Asoc. Méd. P. Rico 49: 262, 1957.
8. *Sijpestein, J. A. K.:* Enige Vormen Var ehfelijke niet-sferocytaire anaemic bij kinderen oppenheim, Groningen (as cited by Lehmann) 1958.

CASE REPORT

SUPERNORMAL PHASE OF AV CONDUCTION IN A CASE OF AV BLOCK OF UNKNOWN ETIOLOGY

Fernando A. Córdova, MD
Elí A. Ramírez, MD, MSc

The term "supernormal phase of AV conduction" is used to denote the phenomenon of facilitated conduction within the refractory period which follows stimulation of the AV node. Normally, after an impulse has been transmitted, there is first an absolute and then a relative refractory period, followed by a non-refractory phase which then permits the passage of incoming stimuli. In the presence of AV block, either the absolute (in a complete AV block) or the relative refractory period, or both (in incomplete AV blocks) may be prolonged. Under these circumstances, either the passage or the enhancement of conduction of stimuli may become manifest during a certain critical interval within the refractory period. This is known as the supernormal phase. An impulse arriving in a certain time relationship to a previous impulse is conducted when one would expect it to be blocked, or it is conducted less abnormally than other impulses which do not arrive at that particular time.

The scheme on Figure 1 illustrates the refractory periods in various degrees of AV block and an example of a supernormal phase during a third degree block. Although shown here only in a third degree block, a supernormal phase can occur with any degree of block. In clinical electrocardiography, this phenomenon is demonstrable only when there is pre-existing depressed conduction. "Supernormality" in this sense represents conduction which is less abnormal than the established abnormality.

Previously reported cases have been generally in patients with fairly advanced heart disease. The present report deals with supernormal conduction in a case in which AV block and variable arrhythmias are present without significant functional impairment, the etiology of the block being undetermined.

From the Department of Medicine, San Juan Veterans Administration Hospital and the University of Puerto Rico School of Medicine.

Case Report

A 45 year old male veteran has had several admissions to the San Juan Veterans Administration Hospital for treatment of duodenal ulcer disease present since 1943. At the time of his first admission in 1953, when the patient was 31 years old, an electrocardiogram revealed complete AV block with a main stem pacemaker. He gave a history of occasional spells of lightheadedness, but not of syncope, convulsions, or palpitations. There was no antecedent history of rheumatic fever, or of other illnesses predisposing to heart disease. There was no family history of cardiac illness. On physical examination, there were no abnormalities except for a soft systolic murmur at the base.

Further admissions over the intervening years have repeatedly shown a variable AV block with the corresponding physical and electrocardiographic signs. Supernormal conduction was first noted in 1958. He has remained essentially asymptomatic from the cardiovascular standpoint. Specifically, he has not had Stokes-Adams episodes.

The patient's most recent admission was on July of 1967, when he was admitted with still another exacerbation of

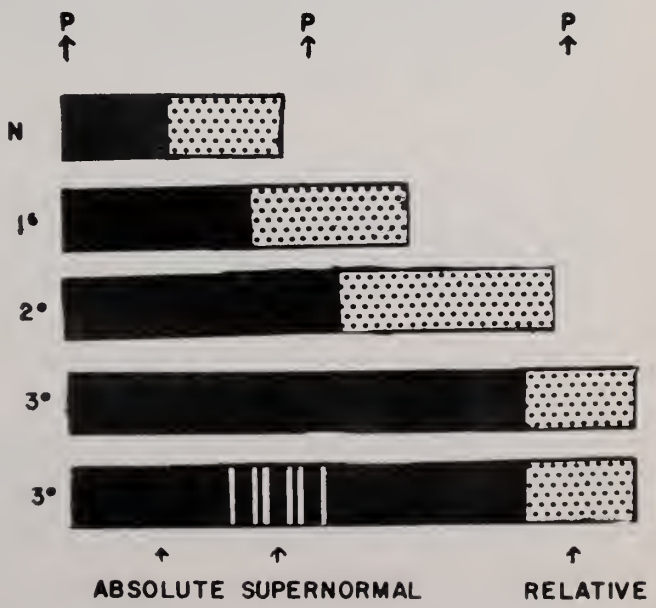


Fig. 1: *Categorization of different types of AV block according to degree of refractoriness.*

duodenal ulcer. He was asymptomatic from the cardiac standpoint. The blood pressure was 140/70mm Hg, the pulse rate 50/min., with periods of faster rate. Physical examination was unchanged. A chamber analysis failed to reveal significant chamber enlargement. The electrocardiogram again showed a third degree AV block with occasional ventricular captures. Other than the arrhythmia, the electrocardiographic configuration was normal.

Figure 2 shows a portion of a long strip of Lead 2 taken at this time. On the diagram below, we see the P waves recurring approximately every .90 secs. with only slight irregularity. There is a variable AV block, the ventricular beats, from a main stem pacemaker, occurring at intervals which fall into two categories. In one group, the RR interval ranges from 1.20 to 1.30 secs., and in the other from .92 to 1.08 secs. In the short RR intervals, the ventricular complexes follow P waves which fall within .30 to .50 secs. after the preceding QRS. The PR intervals for these capture beats average .60 to .64 secs. In the second strip, we find a sequence of six consecutive beats conducted in this fashion. The seventh P wave arrives then slightly earlier than the previous one and is blocked. Sporadic captures are seen in the rest of the tracing when the P falls within the critical .30 to .50 secs. after a QRS complex.

In figure 3, the RR intervals (ordinate) from this tracing are plotted against the corresponding RP intervals (abscissa). Thus we can see again that the RR intervals are grouped into two categories: A set around 1.26 (ranging from 1.20 to 1.30 secs.), and a smaller group with shorter intervals, (from .92 to 1.08 secs.). The latter represents the "captures" and these are seen to fall within the RP intervals of 0.30 to 0.50 secs. The fact that there is some overlap at both ends may represent either some variation of the critical interval itself, or the difficulties of accurately measuring some of these intervals when P waves fall within a T wave. The RP intervals associated with the longer RR intervals fall into three groups. The first set exhibits RP times below .30 secs., and represent P waves falling within the absolutely refractory phase which are blocked. Another set shows very long RP intervals, and consequently extremely short PR intervals, and also represent blocked P waves which fall at random just before the QRS. The other set of RP times between 0.70 and 0.90 secs. exhibits a rather scattered range of PR intervals (much more so than the group "supernormally" conducted) and cannot be differentiated from the clearly blocked groups at either end in terms of its relationship to the RR length.

It would appear from this distribution that the critical factor in determining the shortening of the RR length, *i.e.* ventricular capture, is the timing of the auricular impulse within the RP segment. As AV block is present, the refractory period is prolonged so as to extend through the entire ventricular cycle. In this depressed state of conduction, supernormality becomes manifest by the conduction of an auricular impulse which is expected to be blocked. The conduction itself is still abnormal, since the conducted PR intervals average .60-.64 secs. Through this mechanism, sustained 1:1 conduction may be achieved at times, as shown

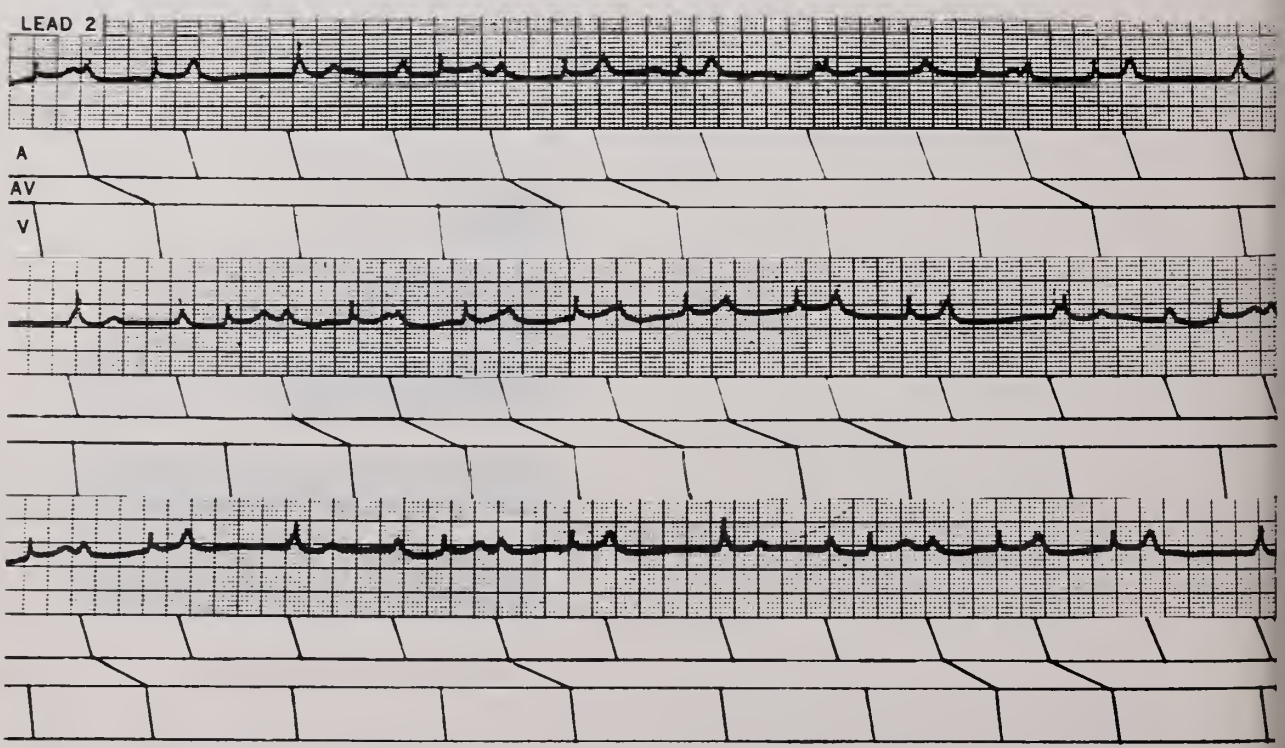


Fig. 2: *Long Lead 2, with its schematic representation. "A" shows atrial complexes, "V" ventricular complexes, "AV" captures. The last QRS complex in each strip is the same as the first on the succeeding strip. See text for explanation.*

in the tracing in Figure 2.

Figure 4 again plots RR against RP intervals from a longer tracing taken from the patient some time later. Here, although the general trend seems to be the same as on the earlier graph, we find that there is a small group of stimuli arriving .38 to .40 secs. after the QRS which are blocked, fail to capture, and thus fall into the group with longer RR intervals. Whether this represents intermittent absence of supernormality intermittently or a notched, bifid contour of the supernormality curve, is hard to determine. The fact that these P waves fall steadily right in the middle of the responsive period, without any scatter, is suggestive of the latter interpretation. Two P waves arriving late, at .70 and 1.00 secs. are also conducted. Their PR intervals are shorter than those produced by the supernormally transmitted group, whose PR times range themselves rather narrowly at 0.60-0.64 secs., with very slight scatter at both ends.

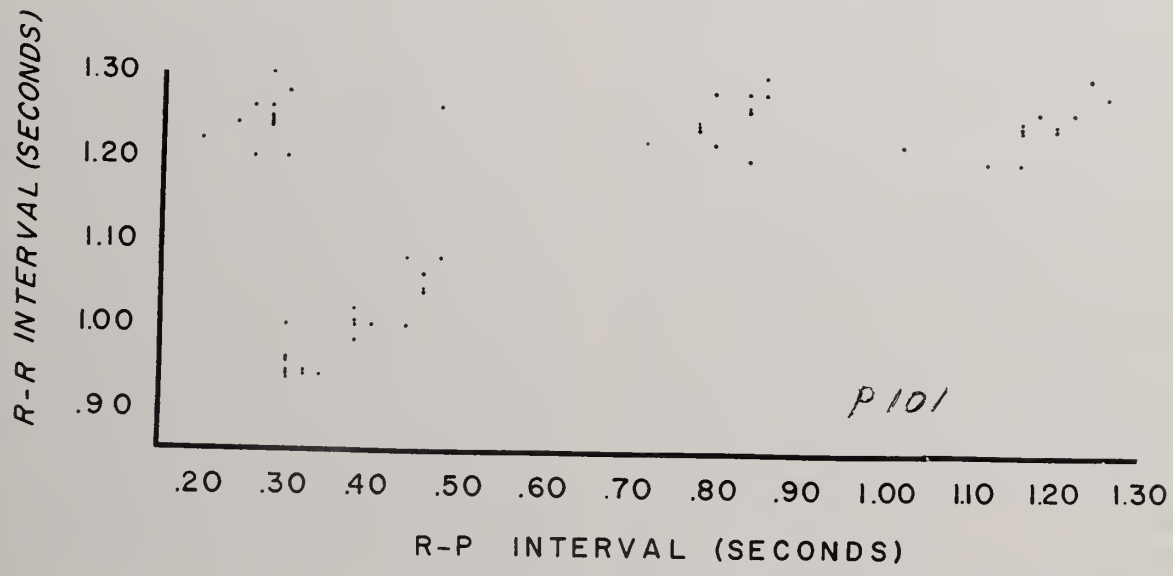


Fig. 3: *Relationship of RR intervals to RP intervals. See text for explanation.*

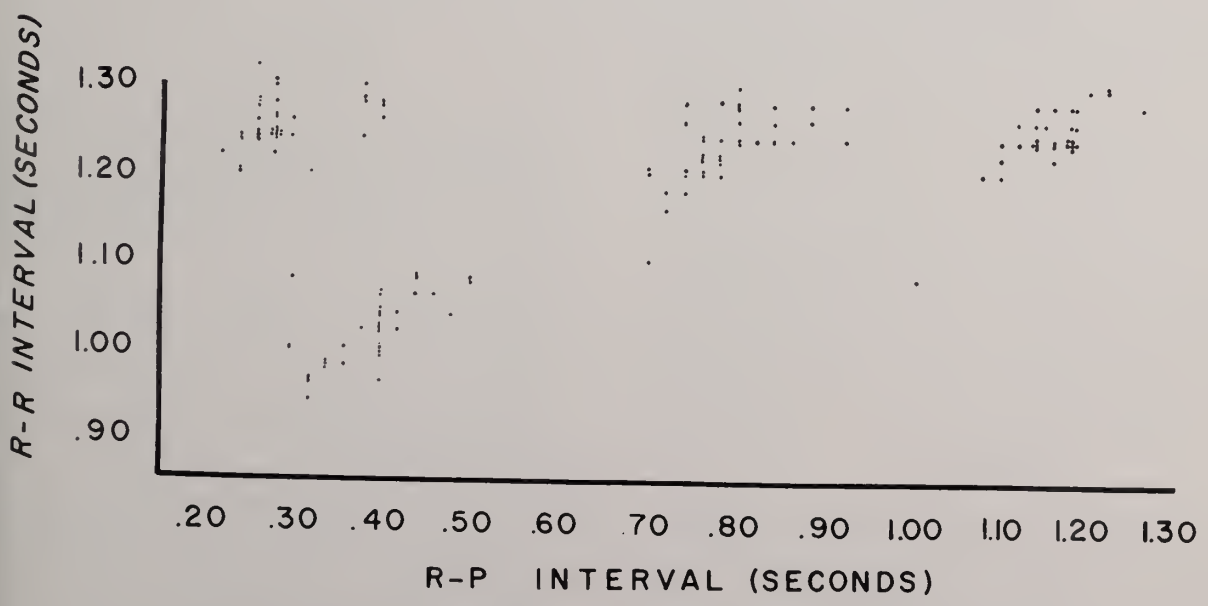


Fig. 4: *Relationship of RR intervals to RP intervals. See text for explanation.*

Discussion

Supernormal conduction has been classified by Pick, Langendorf and Katz (1) into three types. Type A is the situation when supernormal forward conduction follows an impulse propagated in an anterograde manner through the AV node. An example would be a case of first degree or Wenckebach block in which a P falling close to the preceding QRS is conducted with an unexpectedly shorter PR interval. Type B, in which supernormality follows a retrograde impulse is illustrated by our case. In this situation, with a more advanced block, the impulse from a lower pacemaker activates the ventricles and also travels retrogradely into the AV node or the area of AV block, thus facilitating the "supernormal" passage of the impulse coming down in a forward direction from the atria at this critical time. Type C, also shown by our case, is sustained, repetitive supernormal anterograde conduction of the A type after it has been initiated by a Type B retrograde mechanism. This type of mechanism should be considered in any first degree AV block in which the PR interval is so prolonged that the P waves fall within the ST segment of the preceding ventricular complex (2). This diagnosis, however, is not justifiable without additional evidence.

The first two cases of supernormal AV conduction were reported by Lewis and Master (3) in 1924. Up to the present time less than sixty cases have appeared in the literature, although it is generally felt that phenomenon is not as rare as the relatively few reports would indicate (1, 3, 12). Of the reported cases in which a clinical diagnosis is available, all but two showed advanced heart disease, of either arteriosclerotic, hypertensive, or aortic valvular etiology (12). Therefore, the present case is the third with no significant cardiovascular symptomatology, and no evidence of organic heart disease other than the arrythmia itself. These cases suggest that AV conduction supernormality can be considered as an intrinsic functional state of the AV node that may appear variably during AV block of any etiology.

Summary

A case of variable AV block is presented in which a complete AV block is interrupted by sporadic ventricular captures during a supernormal phase of AV conduction. Change to a sustained first degree block ascribable to sustained supernormal forward conduction is also demonstrated.

Unlike most of the previous cases of supernormal AV conduction reported, this case shows no other evidence of organic heart disease. This observation is consistent with the concept of supernormality of AV conduction as a rare, intrinsic function of the AV node that may become manifest during any degree of AV block, regardless of its etiology.

Resumen

Se discute un caso de bloqueo atrioventricular en el cual períodos de bloqueo completo son interrumpidos por capturas ventriculares que ocurren gracias a conducción durante la fase supranormal del nodo AV. Se demuestra también un período de bloqueo AV de primer grado atribuído a persistencia de conducción AV durante la fase supranormal.

La mayoría de los casos de esta índole ya descritos en la literatura médica tenían otras manifestaciones de enfermedad cardiaca. En este caso, por el contrario, la única evidencia de cardiopatía es el trastorno de conducción AV en sí. Esta observación está de acuerdo con el concepto de la supranormalidad en la conducción AV como una función intrínseca del nodo atrioventricular. Esta propiedad del nodo puede hacerse manifiesta en raras ocasiones durante bloqueo AV de cualquier grado y sin importar cual sea su etiología.

References

1. *Pick, A., Langendorf, R., and Katz, L. N.:* The supernormal phase of atrioventricular conduction. 1. Fundamental Mechanisms. Circulation 26: 388, 1962.
2. *Katz, L. N., and Pick, A.:* Clinical Electrocardiography. Part 1: The Arrhythmias. Lea and Febiger, Philadelphia, 1956, p. 643.
3. *Lewis, T. and Master, A. M.:* Supernormal recovery phase illustrated by two cases of heart block. Heart 11: 371, 1924.
4. *Scherf, D. and Schott, A.:* The supernormal phase of recovery in man. Am. Heart J. 17: 357, 1939.
5. *Langendorf, R.:* Alternation of AV conduction time. Am. Heart J. 55: 181, 1958.
6. *Jonas, S.:* Supernormal Phase of AV conduction. Report of two cases. Am. Heart J. 58: 262, 1959.
7. *Ashman, R. and Herrman, G. R.:* A supernormal phase in conduction and a recovery curve for the human junctional tissues. Am. Heart J. 1: 594, 1925-1926.
8. *Wolferth, C. G.:* The so-called supernormal recovery phase of conduction in heart muscle. Am. Heart J. 3: 707, 1928.

9. *Luten, D. and Pope, S.:* Variations in heart block sometimes attributed to a supernormal recovery phase. Am. Heart J. 5: 750, 1930.
10. *Sachs, A. and Traymor, R. L.:* Paroxysmal complete auriculo-ventricular block. Am. Heart J. 9: 267, 1933-34.
11. *Mack, I., Langendorf, R., and Katz, L. N.:* The supernormal phase of recovery of conduction in the human heart. Am. Heart J. 34: 374, 1947.
12. *Schamroth, L.:* Supernormal phase of atrioventricular conduction. Association with second degree ventricular ectopic block. Am. J. Cardiology 19: 886, 1967.

LET US CONSIDER.....

During the past decade we have witnessed changes in the world socio-economic structure: A group of nations have developed a Common Market to protect their individual economies; the Alliance for Progress was created to improve the general conditions of underdeveloped countries; better legislation has been enforced to meliorate human rights. Last, but not least, the highest body of the United Nations has proclaimed that education and service in family planning constitute a basic human right to which everyone is entitled.

The main objective of the above efforts is the enrichment of human life by affording each individual the opportunity to develop his own potentialities. Action has followed words, and in this year of 1968, federal monies have been allocated for programs on family planning.

After these introductory remarks we shall review some pertinent aspects which will be substantiated as we go on.

Hemorrhage has been the leading cause of maternal death among Puerto Rican women for many years. Most were women over 30 years of age who had had more than five pregnancies. At the University Hospital we have witnessed the high maternal death toll for elderly grand multiparity. Generally speaking, a grand multipara past age thirty should avoid subsequent pregnancies. In some of these patients, another pregnancy may be inviting suicide. For others in this age group, complications of pregnancy may render them physically or mentally disabled.

It is everyone's responsibility to help prevent this wasting of human life and the resultant burdens to other members of the family and society. I am sure that many of these deaths could have been avoided were these women taught effective means of fertility control. Benefits of family planning include not only the preservation of mother's health and better care for each member of her family, but these benefits are also manifested in improved socio-economic conditions as a whole.

Women had been excluded from the voting franchise for many years. In many countries they are still regarded as inferior to men. In other countries they are classed among the goods and chattels of the husband. This sexual physiological difference between man and woman has been used as a limiting factor for discrimination against women in educational opportunities, equality of employment and recognition of abilities. Many of our opinions and attitudes today are subconsciously governed by this out-of-date thinking. For the first time in history, woman has control over her own reproductive powers. The emancipation of woman is inseparably bound with the social and technical development in our society.

Present day society reflects a more liberal sexual trend. Our world is transforming with ever-increasing rapidity. There are alarming numbers of illegitimate and deprived children. Unhappy disillusioned young people are saddled with responsibilities with which they are unable to cope. For instance, in Britain 31,000 out of 40,000 abortions are said to be illegal. In Chile one out of three pregnancies terminates in criminal abortion. Throughout Colombia (S.A.) the second cause for hospitalization is criminal abortion and 80 percent of all children from one to four years of age suffer from severe malnutrition. In Puerto Rico the incidence of drug addiction, delinquency and divorce has increased in recent years.

The number of illegitimate births and the rise in abortion rate evoke justifiable alarm and anxiety, but uncontrolled family size among approximately 50 percent of families evokes no similar response. Society has a concern for responsible family planning. But who has the right to declare how many children each couple should have? The details of this complex problem concern the sociologist, economist, demographer and others. They would easily prove to us that not only health, but economy, education and the social progress of our society will be affected one way or the other when this question is answered.

There are many other factors involved which are beyond the scope of this presentation, but which

bear mentioning. Religious leaders have a responsibility to their members by familiarizing themselves with all the aspects of the problem before pronouncing for or against a certain contraceptive method. There were similar debates at the turn of the century when it was proposed to offer women in labor some relief with an inhalant anesthetic. Religious leaders and others must decide whether or not the individuals are the only ones who have the sole right to regulate the size of their families. These and many other problems pose a concern for the future progress of many of our countries.

To some of us, today's turmoil is symptomatic of a syndrome called "family desintegration". It is the social unit, the family, which in some way has failed to meet the present trends. You may call it poverty, others call it ignorance, illiteracy, poor religious background, etc.

The logical approach toward rehabilitating unity is to r se the educational and economical standards of the underdeveloped. These corrective measures will take time to produce the desirable results. Meanwhile, one of the ways to expedite the achievement of quality and improvement in the family unit is to educate the community towards attaining a realistic family size through good family planning. Certainly we do not advocate that every couple should practice birth control because millions in Asia, Africa or South America are starving, or because of crowded schools and universities, or because unemployment figures may rise. We do not agree either with those who claim that because they have so much land to share they should not worry about family planning. This is wrong. The size of the family must be decided by each couple in the light of their own problems.

In conclusion, we should improve parents' knowledge, attitudes, and behavior toward responsible parenthood, so they can teach their children better habits and knowledge on facts related to humanhood.

Future progress of man depends heavily on this endeavor.

A. Hernández-Torres, MD

EDITORIAL

UNA GRAN ALTERNATIVA Y CUATRO SACRIFICIOS.....

La solución a todos los grandes problemas de Puerto Rico son todas soluciones dolorosas; soluciones que requieren grandes sacrificios. Y la solución al problema del financiamiento de los servicios médicos en Puerto Rico no puede ser una excepción. Esta solución es también dolorosa y conlleva grandes sacrificios.

De parte de los ciudadanos conlleva el sacrificio, en nuestras familias de bajos ingresos, de guardar diariamente algunas monedas amarradas con un nudo en la punta de un pañuelo para unirse éstas a la contribución de los patronos o de nuestro Gobierno y entre ambos reunir la prima de un seguro médico voluntario prepagado. En el caso de nuestras familias de la clase media, el sacrificio que al cambiar el cheque del salario del jefe de la familia, se separa por un lado el dinero de la compra del colmado y por otro lado el dinero de la compra de la salud.

De parte de las instituciones que se dedican a los seguros médicos voluntarios prepagados, conlleva el sacrificio de mejorarse cada día más en eficiencia y desarrollar rápidamente cubiertas de beneficios comprensivos incluyendo beneficios de protección contra enfermedades mentales, contra gastos por productos farmacéuticos y otros. Después de todo, nadie puede escoger su enfermedad de antemano.

De parte de nuestro Gobierno, conlleva el sacrificio de olvidarse para siempre y borrar los últimos vestigios de la intervención del criterio político en la distribución de los servicios médicos, moviéndose rápidamente a un sistema completamente depolitizado empezando por establecer una Junta o Consejo Estatal de Salud, con responsabilidades análogas a la del Consejo de Educación Superior en la educación superior en Puerto Rico. La comunidad médico-científica deberá tener en ese sistema la misma autonomía que hoy tiene la comunidad de profesores en la vida universitaria. Y es que en asuntos de enfermedades y de enfermos, los puertorriqueños tenemos todos que admitir y vivir el concepto del Partido de la Salud; el partido al cual debemos pertenecer, el partido que busca y defiende el status Saludable para todos los puertorriqueños.

La medicina moderna no puede distribuirse con los mismos utensilios administrativos que se usaban para distribuir los servicios médicos que podía ofrecer la medicina de hace 20 o 30 años. Esta fue una de las grandes conclusiones de la comisión nombrada por el Presidente Lyndon B. Johnson para investigar los tres grandes ofensores de la salud del pueblo americano; el cáncer, las enfermedades del corazón y los accidentes cerebrovasculares. Ciertamente, concluyó esta comisión que los aparatos o utensilios administrativos anticuados no están permitiendo que le llegue al ciudadano el fruto del conocimiento científico. No permiten estas herramientas obsoletas que le llegue a Juan del Pueblo el fruto de lo que la ciencia ya conoce. Hay que buscar métodos más modernos basados en las técnicas y realidades científicas modernas y poner el conocimiento científico a trabajar más eficientemente para beneficio de toda la ciudadanía y que el hombre disfrute más del éxito del hombre. Este es el gran sacrificio de nuestro Gobierno en la implementación de esta solución.

Para la clase médica de Puerto Rico también conlleva un gran sacrificio. Tenemos que revisar nuestro atesorado concepto de la sagrada relación entre el médico y el paciente. La medicina moderna exige un concepto diferente. Está el médico, está el paciente y ahora una tercera parte que se ha hecho responsable del costo de los servicios de salud y que tiene también la sagrada res-

ponsabilidad de conocer la naturaleza de la enfermedad de su asegurado, la necesidad de los servicios médicos prestados, la calidad de estos servicios y el costo de los mismos usando, en todas estas obligaciones, criterios estrictamente científicos. En este sentido, el sistema de los seguros médicos voluntarios prepagados está de acuerdo y practica esa gran idea moderna de poner el conocimiento científico a servirle más eficientemente a la ciudadanía.

No tengamos duda que en la historia del quehacer público y de la Clase Médica de Puerto Rico, han existido patrones, conceptos y maneras de hacer las cosas que han sido como vacas sagradas que la medicina moderna y sus costos exigen que el Gobierno a las suyas y la Clase Médica a las nuestras, con devoción y reverencia, le caigamos a palos hasta meterlas todas dentro del cercado de la presente realidad puertorriqueña.

A. L. Rodríguez Rosado, MD

Five Days per Week

The American hospital—the world's most advanced and best-equipped lifesaving institution—is in most instances only fully operative five days of the week.

But unlike some private business firms, which are inching toward an even shorter week, there is a move in some hospital circles to keep hospitals working at capacity seven days a week.

If this takes place, says the Health Insurance Institute, it could bring about a basic change in health care by helping to bring down costs and ease overcrowding.

Authorities point out that on the present five-day basis, hospitals provide ample care for their patients and for the emergency treatment necessary during weekends.

But because of reduced staff schedules, expensive equipment often lies idle on Saturdays and Sundays. And if a patient is admitted to a hospital on a weekend on a non-emergency basis, he may have to wait one or two days before treatment begins.

According to the National Commission on Community Health Services, entering a typical hospital on a Friday is "to spend a lost weekend waiting for the week to begin."

A study of nearly 4,000 hospital discharges in the Pittsburgh area found that the day of the week the patient was admitted was the primary factor in determining how long he remained hospitalized.

Admissions on Friday, the study showed, resulted in longer stays than admissions on any other day.

This loss of time, the study reports, is due to most operating and laboratory facilities being closed on weekends.

Some communities, aware of this problem, have been working with local hospitals to have a patient scheduled for surgery undergo laboratory tests before entering them.

A number of health insurers have joined in the experiment and have agreed that for hospital insurance purposes, they will pay benefits for out-patient testing on the same basis as for a hospitalized patient.

This, in part, is why a small core of hospital administrators have been advocating a seven-day work week.

Yet a good many administrators continue to maintain that the extended week would merely add measurably to their short-term hospital costs.

Others point to a shortage of skilled employees needed to flesh out a full work week. Besides, they say, overcoming the philosophy of the five-day work week on so large a scale could be too big a challenge. Even the public may not be ready.

Still other hospital authorities feel that only large hospitals could operate without a loss on a seven day schedule.

Yet, the potential of this new approach intrigues some administrators now accumulating evidence to support it.

They believe it is difficult to defend the costs of hospitalizing a patient on a Friday, then having him wait until Monday or Tuesday for surgery because regular operating and laboratory services are curtailed on weekends.

One Eastern hospital, which put a full-week schedule into effect, found that the average length of most patient stays had been reduced by half a day.

It meant, according to the administrator, that his hospital could care for nearly 1000 more patients a year.

The National Commission, co-sponsored by the National Health Council and the American Public Health Association, recognizes that other factors are involved. For example, most hospital physicians and surgeons probably would not favor a seven-day week.

Surgeons, according to the Commission, prefer to operate in the morning when they are rested. Very few prefer to use surgery on Saturdays and Sundays except in emergencies.

Nevertheless, the Commission observes, if hospitals work on a full-week basis, "it follows logically that operating and maintenance costs will be kept down."

Reprinted from: Health Insurance News, Health Insurance Institute, New York, New York, January 1969.

The Unit Dose System

Perhaps the largest social issue before the health professions today is the optimal utilization of the capabilities of each member of the health care team for the benefit of the patient. We are clearly far from knowing how best to mobilize our personnel resources now and in the future to meet the acceleration in the variety and number of health care needs. Urgently needed is drastic revision in the way needs are assessed and the way the functional roles required to meet them are assigned. Professional prerogatives, historial jurisdictions, and legal proscriptions which deter experimentation must also be reexamined in the light of social and individual needs.

Unfortunately, the factual and organizational substratum essential to rational solutions is not yet at hand. Instead, we must resort to empiric approaches which courageously and imaginatively scrutinize traditional patterns of care from two points of view: Do they make optimal use of the manpower we now possess?

Kern, (1) of the University of Kentucky Hospital, describes one such empiric attempt. She describes a six-year experience with assigning to the professional pharmacist one of the most carefully guarded of the nurses' functions—the interpretation of the physician's medication order, the preparation of the individual dose and its packaging in the form ready for distribution and administration to the patient.

The system described is the "unit dose" system which was developed collaboratively with the hospital pharmacy. The system was devised with several objectives in mind: to save precious nurse time, to reduce medication errors, and to make optimal use of the pharmacists' superior knowledge of the constantly changing field of new drugs, dosage forms, incompatibilities, and side effects.

The method is simple. Physicians' medication orders are transmitted immediately via carbon to the pharmacy. The pharmacist interprets the medication order, prepares the individual dose, labels it, delivers it in unit dose to the nursing division at the appropriate time, and automatically prepares the charge slip until the medication is discontinued. Medications are delivered in individualized plastic drawers and administered from these to the patient. All questions of interpretation of orders is discussed directly between pharmacist and physician. The pharmacist is on call 24 hours per day for consultation. The nurse remains responsible for administering the proper medication at the right time to the right patient.

The system at Kentucky has achieved two of its goals: medication errors are reduced, and the pharmacists expert knowledge is better utilized. Unfortunately, the hope that more nurse time would be available for direct patient care did not materialize. The time saved in transcription and preparation is consumed by checking the medications delivered and communicating with the pharmacist.

The system is clearly worthwhile for what it does achieve. Kern suggests that perhaps the hoped-for savings in the nurses' time can be attained by extending the system to include administration and recording of medication by the pharmacists rather than the nurse.

Experiments of the type described by Kern are needed in all phases of patient care. Provided their goals are clear and simple, they will contribute materially to the overall effort to design a patient-care system which makes optimal use of each health profession.

Physicians must more acutely recognize their social responsibility to participate actively in these reexaminations of traditional functions—including their own. Indeed, they can assume a role of leadership here which is consistent with public expectations and consonant with their own ethical imperative to place the good of the patient above all professional prerogatives.

Edmund D. Pelligrino, MD
Stony Brook, N. Y.

1. *Kern, M. S.:* New ideas about drug systems, Amer. J. Nurs. 68: 1251-1253 (June) 1968.

Reprinted from The Journal of The American Medical Association - August 19, 1968, Vol. 205, Page 585.

NOTICIAS

ANNOUNCEMENT OF MANUSCRIPT AWARD FOR 1970 BY THE OBSTETRICS AND GYNECOLOGY SPECIALTY GROUP OF THE INTERNATIONAL COLLEGE OF SURGEONS

The Obstetrics and Gynecology Specialty Group of the International College of Surgeons is pleased to announce a competition for an award to be given the author of a manuscript selected by the Prize Committee of the Group. This award will consist of an invitation to present the winning paper at our meeting in Paris, France, including a round-trip ticket, hotel expenses and $10.00 per diem.

Fellows of the International College of Surgeons are not eligible. Contestants must be interns, residents or graduate students in the field of obstetrics and/or gynecology. Contestants must hold the degree of Doctor of Medicine from an accredited college of medicine.

An original and three copies of each manuscript (carbon, photostatic, mimeographic or other) and illustrations must be submitted on or before January 15, 1970 to Doctor Eduard Eichner, Chairman of the Prize Committee, 10605 Chester Avenue, Cleveland, Ohio, 44106.

The purpose of this contest is to advance the art and science of obstetrics and gynecology in accordance with the principles of the International College of Surgeons and with the primary aim of the College, to extend the frontiers and elevate the standards of all branches of surgery.

EDUCATIONAL COUNCIL FOR FOREIGN MEDICAL GRADUATES

Examination Dates: September 10, 1969 (Examination No. 33) - February 11, 1970 (Examination No. 34).

Completed application must be received in ECFMG office not later than June 10, 1969, for Examination No. 33 - November 11, 1969, for Examination No. 34.

PROGRAMA DE ACTIVIDADES

A continuación informamos las actividades a llevarse a cabo durante el mes de abril:

Abril 1 - Reunión Asociación Asistentes Médicos - AMPR - *7:30 p.m.*
Abril 1 - Reunión Comité Programación Distrito Este - AMPR - *7:30 p.m.*
Abril 1 - Reunión Comité Relaciones Públicas Distrito Este - AMPR - *8:00 p.m.*
Abril 1 - Dominó - AMPR - *8:00 p.m.*
Abril 1 - Seminario de Oratoria - AMPR - *8:00 p.m.*
Abril 1 - Reunión Comité Social y Cultural Distrito Este - AMPR - *8:00 p.m.*
Abril 2 - Reunión Distrito Este - AMPR - *7:30 p.m.*
Abril 2 - Reunión Consejo de Educación Médica - AMPR - *8:00 p.m.*
Abril 7 - Reunión Comité Feria de la Salud - AMPR - *11:00 a.m.*
Abril 8 - Reunión Consejo Científico - AMPR - *6:00 p.m.*
Abril 8 - Reunión Asociación Asistentes Médicos - AMPR - *7:30 p.m.*
Abril 8 - Dominó - AMPR - *8:00 p.m.*
Abril 8 - Vistas Públicas Control del Crimen - AMPR - *8:00 p.m.*
Abril 8 - Reunión Consejo Relaciones Públicas - AMPR - *8:00 p.m.*
Abril 9 - Reunión Consejo de Servicios Médicos — AMPR - *8:00 p.m.*
Abril 9-11 - Convención Asociación de Salud Pública - San Jerónimo Hilton
Abril 11 - Convención Anual Asociación Estudiantes de Medicina - Anfiteatro Hospital de la Capital - *8:00 a.m.*
Abril 12 - Asamblea Administrativa Asoc. Graduados España - AMPR - *8:00 p.m.*
Abril 13 - Convención Anual Asociación Estudiantes de Medicina - Centro Médico - *9:00 a.m.*
Abril 14 - Asamblea Asociación de Administradores Hospitales - Hotel San Juan
Abril 15 - Reunión Asociación Asistentes Médicos - AMPR - *8:00 p.m.*
Abril 15 - Convención Científica Asoc. Internos y Residentes - Anfiteatro Hosp. Universitario - *9:00 a.m.*
Abril 15 - Dominó - AMPR - *8:00 p.m.*
Abril 15 - Reunión Consejo Política Pública - AMPR - *8:00 p.m.*
Abril 16 - Asamblea Asoc. Servicio Comprensivo Enfermería Visitante - Anf. Escuela de Medicina - *9:00 a.m.*
Abril 17 - Reunión Directiva y Comités de la Cooperativa AMPR - AMPR - *8:00 p.m.*
Abril 17-18 - Conferencias Sobre Problemas Sociales para estudiantes de escuela superior - Casa Caná - *8:30 a.m.*
Abril 18 - Coctel Sección Otorrino - AMPR - *7:30 p.m.*
Abril 19 - Reunión Cámara de Delegados de la AMPR - Hotel Mayaguez Hilton - *9:00 a.m.*
Abril 22 - Reunión Asoc. Asistentes Médicos - AMPR - *8:00 p.m.*
Abril 22 - Dominó - AMPR - *8:00* p.m.
Abril 23 - Conferencia por el Dr. José R. Casanova Díaz - AMPR - *8:00 p.m.*
Abril 24 - Reunión Consejo de Salud Pública - AMPR - *8:00 p.m.*
Abril 24 - Reunión Consejo Judicial y Administrativo - AMPR - *8:00 p. m.*
Abril 24 - Asamblea Anual Asociación Antituberculosa - Hotel Caribe Hilton - *8:00 a.m.*
Abril 25-26 - Asamblea Anual Asociación Antituberculosa - Hotel Mayaguez Hilton.
Abril 29 - Dominó - AMPR - *8:00 p.m.*

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el número de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), e iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas médicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pilar Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras, Están semiequipadas. Sitio céntrico próximo a las calles principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas, Apartado 20267, Río Piedras, P. R., Teléfono 766-7398.

Space contributed as a public service by this magazine.

Pick one to die.
Pick one for jail.
Pick one to waste away.
Pick three for happiness.

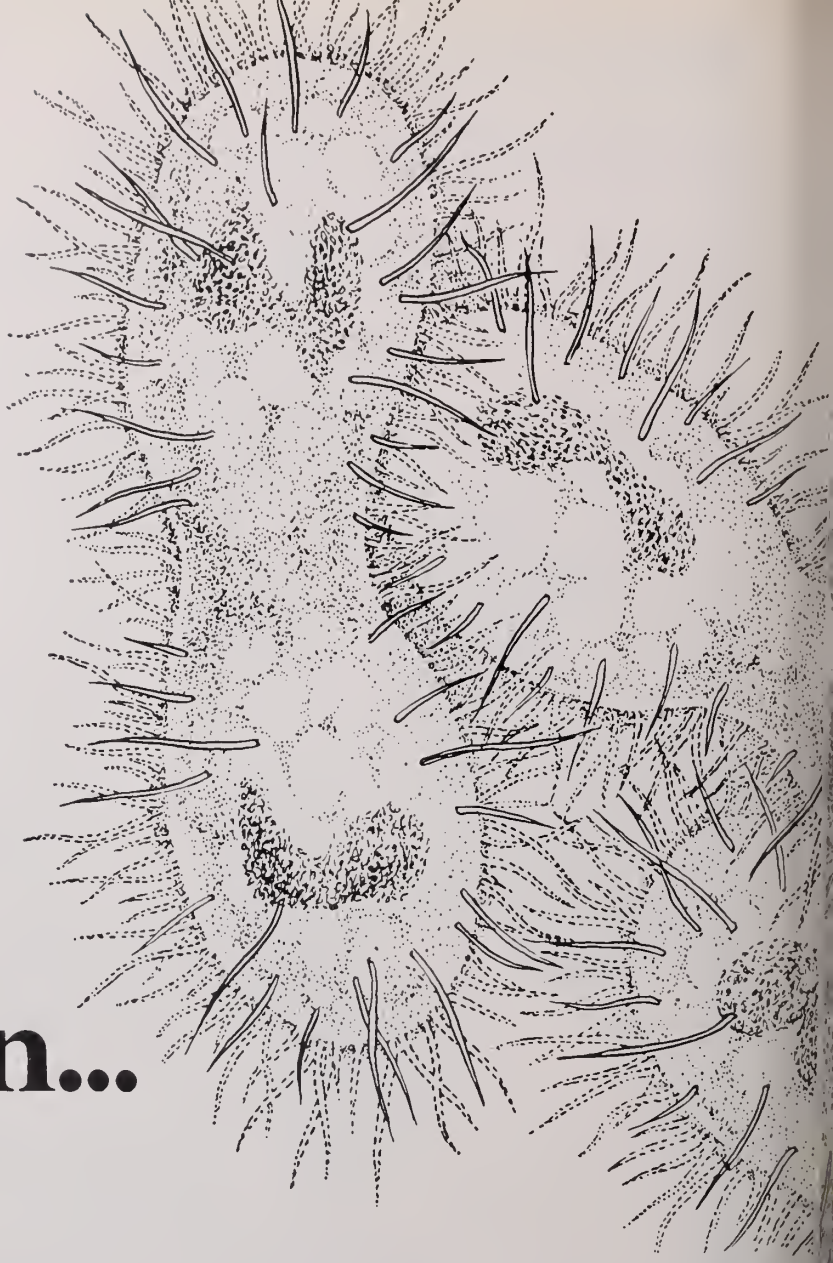


oto contributed by Bruce Pendleton

Some children find happiness easily. Others need the help and guidance only a trained person can provide, medical attention they cannot afford, love they have been denied. When you decide to give to your United Fund or Community Chest, you may change a life.

Your fair share gift works many wonders ✓ **THE UNITED WAY**

5 million families benefit from child care, family service, youth guidance, health programs, disaster relief and services for the Armed Forces through 31,300 United Way agencies.



A high index of suspicion... E. coli

How high is the "index of suspicion" for *E. coli* in urinary tract infections?

Recently it has been estimated that about 86 per cent of positive cultures in first attacks of urinary tract infection are *E. coli.*[1] It has also been noted that "The coliform group, especially *E. coli*, accounts for approximately 90 per cent of initial infections. . . ."[2]

Consider wide-spectrum Gantanol® (sulfamethoxazole) for its high "index of confidence"—its proven effectiveness against *E. coli* and other sensitive gram-negative and gram-positive organisms. Therapeutic levels of Gantanol in blood and urine are achieved within 2 hours after a 2-Gm starting dose, with ready diffusion into interstitial fluids. Responsive infections generally clear within 5 to 7 days, with relief of symptoms usually seen within 24-48 hours.

Gantanol also earns its high "index of confidence" because Gantanol therapy is relatively free from complications, including the problem of bacterial resistance or superinfection.

Convenient, economical dosage schedule: *b.i.d.*

References: 1. Vernier, R. L., in Patient Care Feature: *Patient Care, 1*:20 (Feb.) 1967. **2.** Beeson, P. B.: "The Infectious Diseases," in Beeson, P. B., and McDermott, W. (eds.): *Cecil-Loeb Textbook of Medicine*, ed. 12, Philadelphia, W. B. Saunders Company, 1967, p. 230.

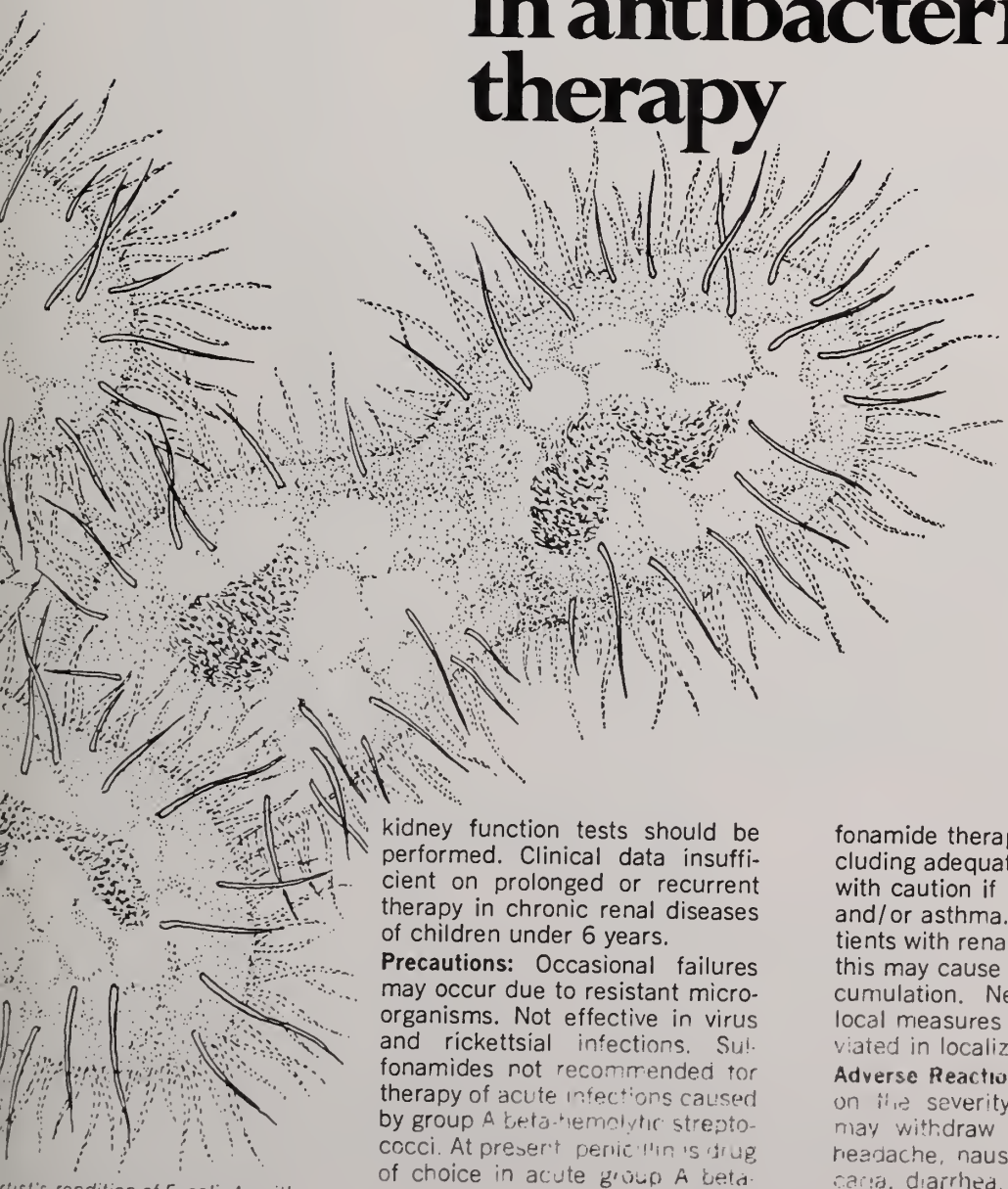
Before prescribing, please consult complete product information, a summary of which follows:

Indications: Acute and chronic urinary tract, respiratory and soft tissue infections due to susceptible microorganisms; prophylactically following diagnostic instrumental procedures on genitourinary tract.

Contraindicated in sulfonamide-sensitive patients, pregnant females at term, premature infants or newborn infants during first 3 months of life.

Warnings: Use only after critical appraisal in patients with liver or renal damage, urinary obstruction or blood dyscrasias. Deaths reported from hypersensitivity reactions, Stevens-Johnson syndrome, agranulocytosis, aplastic anemia and other blood dyscrasias. In closely intermittent or prolonged therapy, blood counts and liver an

For a high index of confidence... Gantanol® (sulfamethoxazole) in antibacterial therapy



rtist's rendition of E. coli. As with strains of E. coli, these have flagella and are motile.

kidney function tests should be performed. Clinical data insufficient on prolonged or recurrent therapy in chronic renal diseases of children under 6 years.

Precautions: Occasional failures may occur due to resistant microorganisms. Not effective in virus and rickettsial infections. Sulfonamides not recommended for therapy of acute infections caused by group A beta-hemolytic streptococci. At present penicillin is drug of choice in acute group A beta-hemolytic streptococcal infections; although Gantanol has produced favorable bacteriologic conversion rates in this infection, data insufficient on long-term follow-up studies as to its effect on sequelae of rheumatic fever or acute glomerulonephritis. If other treatment cannot be used and Gantanol is employed in such infections, *important that therapy be continued in usual recommended dosage for at least 10 days*. Observe usual sulfonamide therapy precautions, including adequate fluid intake. Use with caution if history of allergies and/or asthma. Follow closely patients with renal impairment since this may cause excessive drug accumulation. Need for indicated local measures or surgery not obviated in localized infections.

Adverse Reactions: Depending upon the severity of the reaction, may withdraw drug in event of headache, nausea, vomiting, urticaria, diarrhea, hepatitis, pancreatitis, blood dyscrasias, neuropathy, drug fever, Stevens-Johnson syndrome, skin rash, injection of the conjunctiva and sclera, petechiae, purpura, hematuria and crystalluria.

ROCHE

Roche
LABORATORIES

Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Through these doors pass the world's best excuses for not using safety belts.



What's your excuse?

Advertising contributed for the public good.

ADVERTISING COUNCIL

A once-popular treatment for back pains was to have the seventh son of a seventh son stand or walk on the patient's back.



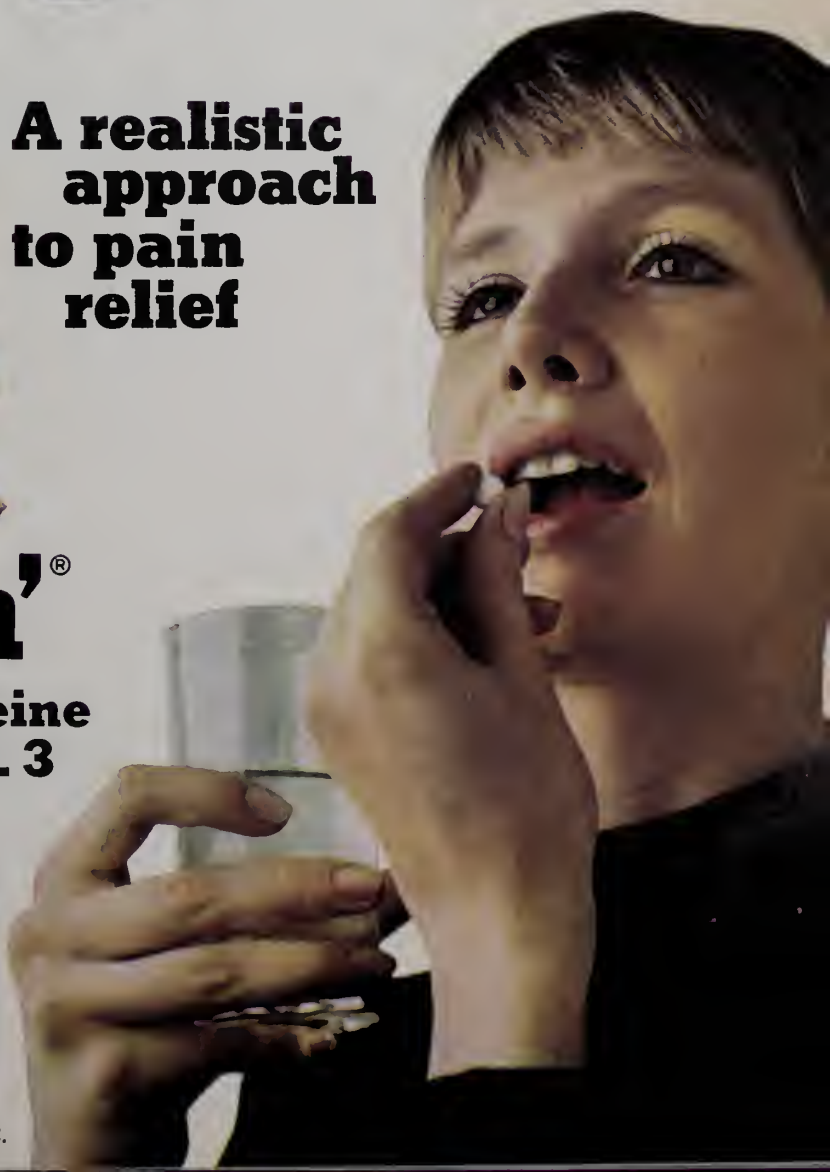


The pain of earache was allegedly relieved by holding a hot roasted onion to the ear.

For headache, a sovereign remedy was to wear a snakeskin round one's head.



A realistic approach to pain relief



'Empirin'®

Compound with Codeine Phosphate gr. 1/2 No. 3

Each tablet contains:
Codeine Phosphate gr. 1/2 (Warning—May be habit forming), Phenacetin gr. 2 1/2, Aspirin gr. 3 1/2, Caffeine gr. 1/2.

keeps the promise of pain relief

'B.W. & Co.' narcotic products are Class "B", and as such are available on oral prescription, where State law permits.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, N.Y.

Mild ulcerative colitis may be triggered here...



In mild ulcerative colitis, a number of factors can precipitate an attack: for instance, dietary indiscretion, such as eating raw foods, or emotional overreaction, such as that aroused by financial difficulties. No matter what causes the patient's sensitive colon to "act up," he soon suffers from acute discomfort...and often, from anxiety and apprehension as well. Such patients frequently respond well to adjunctive dual-action Librax® therapy.

Librax combines, in a single convenient capsule, the well-known antianxiety effect of Librium® (chlordiazepoxide HCl) and the dependable anticholinergic/antispasmodic effect of Quarzan® (clidinium Br). Therefore, as Librax helps to relieve the patient's excessive anxiety and at the same time, helps to control hypersecretion and hypermotility, thus relieving spasm and abdominal discomfort.

With Librax, the dosage schedule is simple: 1 or 2 capsules, t.i.d. or q.i.d., will in most cases bring the patient significant relief of both the emotional and physical elements that contribute to his psychovisceral disorder.

Before prescribing, please consult complete product information, a summary of which follows.

INDICATIONS: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

CONTRAINDICATIONS: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide.

WARNINGS: Caution patients about possible combined effects with alcohol and other C depressants. As with all CNS-acting drugs, tion patients against hazardous occupations quiring complete mental alertness (*e.g.*, opera machinery, driving). Though physical and chological dependence have rarely been repo on recommended doses, use caution in ministering Librium (chlordiazepoxide hy chloride) to known addiction-prone individ or those who might increase dosage; withdra symptoms (including convulsions), follo discontinuation of the drug and similar to t seen with barbiturates, have been reported. of any drug in pregnancy, lactation, or in wo of childbearing age requires that its pote benefits be weighed against its possible haz As with all anticholinergic drugs, an inhib effect on lactation may occur.

PRECAUTIONS: In elderly and debilit limit dosage to smallest effective amount to clude development of ataxia, oversedatio confusion (not more than two capsules per initially; increase gradually as needed and t

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistémicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.

Symbols in a life of psychic tension

B.A.
cum laude

V.P.
at thirty-two

ECG
and complete examination normal (persistent palpitations)



ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110



Rx

Valium® (diazepam) *t.i.d.* and *h.s.*

B.A. (*cum laude*)...V.P. (at thirty-two)...symbols that illuminate the quality of a life...the satisfactions of achievement, as well as its price...the pressures and stresses that can often create cardiac manifestations of psychic tension. For this kind of patient—with no demonstrable pathology—consider the singular benefits of Valium (diazepam).

With its pronounced calming action, Valium can relieve psychic tension promptly, attenuating its somatic signs and symptoms. Further, Valium is distinctly useful when somatic and depressive symptomatology (secondary to psychic tension) coexist. And Valium is generally well tolerated; in proper maintenance dosage, it seldom dulls the senses or interferes with functioning.

When psychic tension-related insomnia appears, an *h.s.* dose added to the *t.i.d.* schedule helps promote sleep.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Valium® (diazepam)

2-mg, 5-mg, 10-mg tablets *t.i.d.* or *q.i.d.*

to help relieve psychic tension
and its somatic symptoms

IN PATIENT BENEFITS

what does CHYMORAL's faster action mean? It can mean:

- Edema and inflammation subside twice as fast—healing time cut in half.
- The patient is restored to normal activities twice as fast.
- Lesions heal in less time—and the physical appearance of the patient improves twice as fast.
- Hospital stay...convalescent period...medication costs may be cut in half.

The benefits of CHYMORAL cover many conditions and the results[1] are worthy of mention.



Surgical trauma

4123 cases **91%** had good/excellent results

3470 cases **89%** had good/excellent results



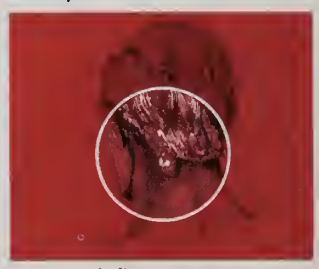
Episiotomy and pelvic inflammation



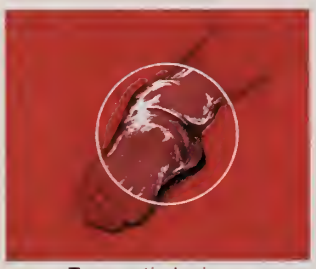
Inflammation of respiratory tract

2389 cases **80%** had good/excellent results

1055 cases **75%** had good/excellent results



Inflammatory dermatoses



Traumatic lesions

6929 cases **93%** had good/excellent results

2645 cases **83%** had good/excellent results



Eye, ear, nose and throat inflammations

***Rx.* CHYMORAL®—Enzyme tablets**

ARMOUR PHARMACEUTICAL COMPANY, Chicago, Illinois 60690, U.S.A.

[1]Based on clinical reports compiled by the Medical Division of Armour Pharmaceutical Company



para esa tos molesta recomiende el nuevo jarabe, sin narcóticos

Cheracol D

dominio efectivo de la tos, sin codeína

Cheracol D con dextrometorfano:

- acción antitusiva igual que con codeína, pero sin efectos secundarios narcóticos indeseables
- afloja las secreciones bronquiales
- refresca y suaviza la garganta
- tiene un agradable sabor a cerezas que lo hace muy popular entre los niños
- puede ser administrado a niños menores de dos años, bajo la vigilancia del médico

Cada onza fluida contiene:
Bromhidrato de dextrometorfano
Cloroformo*
Guayacolato de Glicerilo
Cloruro de Amonio
Tartrato de Antimonio y P
Alcohol
con corteza de pino h
*Cierta pérdida de
Presentación: en

Upjohn

REGISTRADO POR LA OFICINA DE PATENTES DE E.U.A. CHERACOL D PR 3675 2 AÑO 1966
"COPYRIGHT 1966 BY THE UPJOHN COMPANY SE RESERVAN TODOS LOS DERECHOS"

UPJOHN INTER-AMERICAN CORPORATION/CAPARRA/PUERTO NUEVO



from the discord of anxiety...



to emotional harmony

with the aid of antianxiety

Librium®

(chlordiazepoxide HCl)

5-mg, 10-mg and 25-mg capsules

In an age of swift change and
, susceptible individuals
ence varying degrees
anxiety. The resulting
s may precipitate
onal disorders or
organic dis-
ividualized
Librium
uickly
appre-
unc-
gic

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patient against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limit smallest effective dosage (initially 10 mg or less per day) to preclude ata or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiat drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Emp usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measur necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion may occur, especial in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the low dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstru irregularities, nausea and constipation, extrapyramidal symptoms, increa and decreased libido—all infrequent and generally controlled with dosag reduction; changes in EEG patterns (low-voltage fast activity) may appea ing and after treatment; blood dyscrasias (including agranulocytosis), ice and hepatic dysfunction have been reported occasionally, makir blood counts and liver function tests advisable during protracted

EDICION DEL HOSPITAL DE VETERANOS
SAN JUAN, PUERTO RICO

DISPLAY SLEEVES

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

REHABILITATION OF THE INJURED WORKMAN 111
Herman J. Flax, MD

DETERMINATION OF STOOL FAT: 114
Comparison of Van de Kamer's and Friedner's Methods
Marta Cancio, PhD, W. Torres de Rivera, MNS, Conrado F. Asenjo, PhD and R. Menéndez Corrada, MD

A REVIEW
URINARY CALCULI: 119
Pathogenesis and Therapeutic Considerations
Julio V. Rivera, MD, FACP

CASE REPORT
MENINGITIS DUE TO LISTERIA MONOCYTOGENES 127
Fernando A. Córdova, MD, and María Medina, MS

CASE REPORT
PHENYLKETONURIA: 133
A Family Study
Paul F. Crosby, PhD, Ana Navarro, MD and Milton L. Matos, BS

EDITORIAL 138
San Patricio Veterans Administration Hospital, an Era is Passing By .....

INVITACION A UN DIALOGO MEDICO EN ISABELA 140

NOTICIAS 141

THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON
16 JUL 1969

VOL. 61 ABRIL, 1969 NUM. 4


f he exercises

if he stops smoking if he takes Arlidin® (nylidrin HCl) the improvement can be significant!

in peripheral vascular disease: **EXERCISE** "Exercise is the specific physiologic stimulus for producing vasodilation in skeletal muscle."[1] **SMOKING** "The first and most important consideration of treatment is firm insistence that the patient stop smoking immediately and permanently. The reason for this is the powerful vasoconstricting action of smoking which is responsible for diminishing the peripheral circulation to a great degree."[2] **ARLIDIN** The overall physiological effect of a therapeutic agent should be similar to exercise—that is, both to increase cardiac output and to produce peripheral vasodilation.[3] "The ideal agent should be administered in the same way that we prescribe exercise—that is, three or four times a day for many years rather than for several weeks. The therapeutic goal is to increase blood flow through the capillary beds by way of a patent and constantly expanding collateral blood supply. At this time, I am aware of only one agent which fulfills the requirements as outlined above, namely nylidrin (Arlidin)."[3]

Contraindications: Acute myocardial infarction. (Following myocardial infarction, the initiation or reestablishment of this therapy should be undertaken in the same way as physical exercise. After a reasonable healing period, gradual upward adjustment of dosage to therapeutic levels may be attempted.) **Precautions:** Use with caution in the presence of a recent myocardial lesion, paroxysmal tachycardia, severe angina pectoris and thyrotoxicosis. **Adverse Reaction:** Occasional palpitation. **Dosage:** ½ to 1 tablet (3 to 6 mg.) three or four times a day is the usual effective dosage; increased, if necessary, to 2 tablets three or four times a day. Parenterally, 0.5 cc. by subcutaneous or intramuscular injection; increased gradually to 1 cc. one or more times daily, as needed. **Available:** Tablets: 6 mg. scored, bottles of 50, 100, and 500. Parenteral: 5 mg. per cc., 1 cc. ampuls (6 per box); 10 cc. multiple-dose vials (1 per box). **References:** 1. deCrinis, K., Redisch, W. and Steele, J.M.: Proc. Soc. Exper. Biol. Med. *102*:29, 1959. 2. Samuels, S.S.: Med. Times *88*:332, 1960. 3. Karpman, H.L.: Canad. Med. Ass. J. *94*:457, 1966.

arlidin®
(nylidrin HCl)

USV

USV PHARMACEUTICAL CORPORATION
New York, N.Y. 10017



Hot under the collar... high under the cuff.

Sometimes
he forgets he has hypertension, gets hot under the collar...high under the cuff.

For such
patients, consider **Regroton®**

chlorthalidone	50 mg.
reserpine U.S.P.	0.25 mg.

To lower blood pressure
and allay anxiety in hypertension.

For brief summary of prescribing information, see next page.

RE-6392

Regroton®

Geigy

chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

the once-a-day tablet for anxious hypertensives

Regroton is a combination of two basic antihypertensives designed to lower blood pressure and allay anxiety in hypertension. With Regroton he can keep his shirt on and you can keep his blood pressure down.

Before prescribing, please review carefully the indications, contraindications, warning, precautions, adverse reactions and dosage information below.

Regroton®
Each tablet contains:
chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

Indications: Hypertension.
Contraindications: History of mental depression, hypersensitivity, and most cases of severe renal or hepatic diseases.
Warning: With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has frequently been required and deaths have occurred. Discontinue coated potassium-containing formulations immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur. Discontinue one week before electroshock therapy, and if depression or peptic ulcer occurs.
Use in pregnancy: Because chlorthalidone may cross the placental barrier and appear in cord blood and thiazides may appear in breast milk, this drug should be used with care in pregnant patients and nursing mothers. When used in women of childbearing age, the potential benefits of the drug should be weighed against the possible hazards to the fetus. Use of chlorthalidone may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. Increased respiratory secretions, nasal congestion, cyanosis and anorexia may occur in infants born to reserpine-treated mothers.
Precautions: Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs, or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. To avoid hypotension during surgery, discontinue therapy with this agent two weeks prior to elective surgical procedures. In emergency surgery, use, if needed, anticholinergic or adrenergic drugs or other supportive measures as indicated. Because of the possibility of progression of renal damage, periodic kidney function tests are indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated. Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria.
Take particular care in cirrhosis or severe ischemic heart disease and in patients receiving corticosteroids, ACTH, or digitalis. Severe salt restriction is not recommended. Use cautiously in patients with ulcerative colitis or gallstones (biliary colic may be precipitated). Bronchial asthma may occur in susceptible patients.
Adverse Reactions: The drug is generally well tolerated. The most frequent side effects are nausea, gastric irritation, vomiting, diarrhea, constipation, muscle cramps, headache, dizziness and acute gout. Other potential side effects include angina pectoris, anxiety, depression, bradycardia and ectopic cardiac rhythms (especially when used with digitalis), drowsiness, dull sensorium, hyperglycemia and glycosuria, hyperuricemia, lassitude, restlessness, transient myopia, impotence or dysuria, orthostatic hypotension which may be potentiated when chlorthalidone is combined with alcohol, barbiturates or narcotics, leukopenia, aplastic anemia, skin rashes, thrombocytopenia, agranulocytosis, nasal stuffiness, increased gastric secretions, nightmare, purpura, urticaria, ecchymosis, weakness, uveitis, optic atrophy and glaucoma, and pruritus. Eruptions and/or flushing of the skin, a reversible paralysis agitans-like syndrome, blurred vision, conjunctival injection, increased susceptibility to colds, dyspnea, weight gain, decreased libido, dryness of the mouth, deafness, anorexia, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Jaundice, xanthopsia, paresthesia, photosensitization and necrotizing angiitis are possible.
Average Dosage: One tablet daily with breakfast.
Availability: Pink, single-scored tablets in bottles of 100 and 1000.
(B)46-600-C
For details, please see complete prescribing information.

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

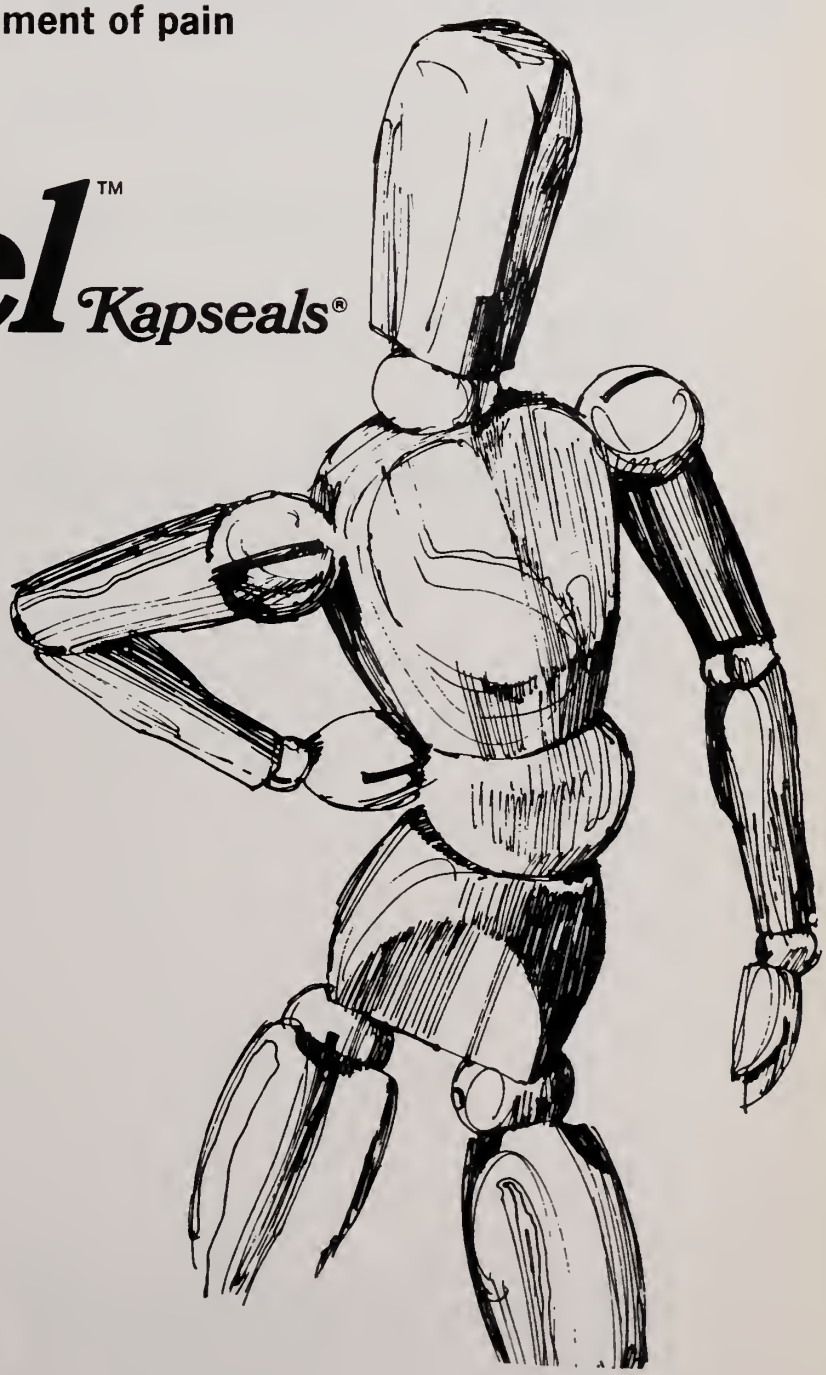
RE-6392

EW . . . for effective management of pain

Ponstel™ *Kapseals*®

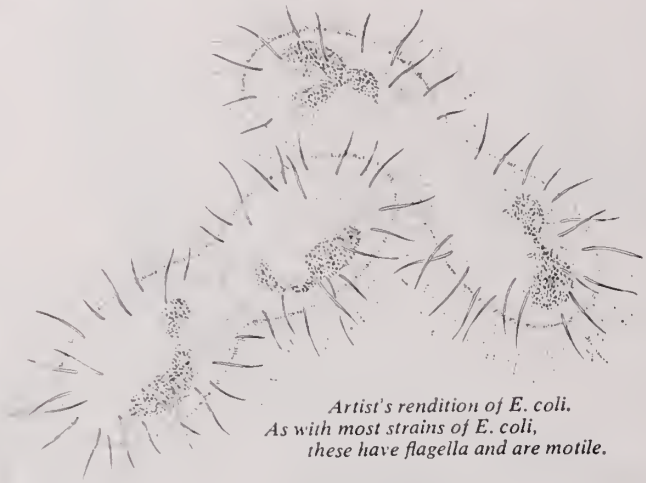
mefenamic acid)

onnarcotic oral analgesic



PARKE-DAVIS

To help avert chronicity in acute cystitis



Artist's rendition of E. coli. As with most strains of E. coli, these have flagella and are motile.

Although it may coexist wit chronic pyelonephritis or prost titis, many cases of chronic cyst tis may result from incomple treatment of a simple, acute cys tis. For this reason, it is bei increasingly recommended th appropriate antibacterial thera in full dosage be maintained f up to two weeks or longer.

Most frequently, the domina pathogen is gram-negative, us ally *E. coli;* most often, you w find Gantanol® (sulfametho azole) effective against *E. c* and other sensitive organisms gram-positive and gram-negati —commonly seen in cystitis a other urinary tract infectio Wide clinical usage of Gantar has confirmed the efficacy of t wide-spectrum antimicrob agent in the treatment of cystit

The rapidity of bacterial m tiplication in a favorable urina environment is well know Prompt control of acute blad infection is therefore essent

---

Before prescribing, please consult c plete product information, a summar which follows:

Indications: Acute and chronic urir tract, respiratory and soft tissue in tions due to susceptible microorganis prophylactically following diagnostic strumental procedures on genitourir tract.

Contraindicated in sulfonamide-sensi patients, pregnant females at term, mature infants, or newborn infants ing first 3 months of life.

Warnings: Use only after critical praisal in patients with liver or r damage, urinary obstruction or b dyscrasias. Deaths reported from persensitivity reactions, Stevens-Joh syndrome, agranulocytosis, aplastic mia and other blood dyscrasias. In cl intermittent or prolonged therapy, b counts and liver and kidney function should be performed. Clinical data i ficient on prolonged or recurrent the in chronic renal diseases of childre der 6 years.

Precautions: Occasional failures ma cur due to resistant microorganisms effective in virus and rickettsial i tions. Sulfonamides not recomm

t only to reduce the patient's comfort but to prevent chron- y and possible ascending in- tion.

Gantanol (sulfamethoxazole) ovides antibacterial activity hin two hours of the initial 2- n dose, and subsequent 1-Gm es, taken morning and eve- g, maintain therapeutic blood l urine levels lasting up to 12 rs. Significant symptomatic onse is frequently achieved hin 24 to 48 hours in acute, omplicated cystitis and other onsive urinary tract infec- s. In addition, Gantanol is ally well tolerated. Should onged therapy be required, convenient *b.i.d.* dosage helps minimize the problem of ped doses.

Over eight years' clinical use thoroughly demonstrated the ities that make Gantanol a l choice for initial therapy of t urinary tract infections, in- ing acute cystitis.

---

erapy of acute infections caused by A beta-hemolytic streptococci. At nt, penicillin is drug of choice in group A beta-hemolytic streptococc- nfections; although Gantanol has ced favorable bacteriologic conver- ates in this infection, data insuffi- on long-term follow-up studies as to ect on sequelae of rheumatic fever ute glomerulonephritis. If other ent cannot be used and Gantanol loyed in such infections, *important erapy be continued in usual rec- nded dosage for at least 10 days.* ve usual sulfonamide therapy pre- ns, including adequate fluid intake. ith caution if history of allergies r asthma. Follow closely patients enal impairment since this may excessive drug accumulation. Need dicated local measures or surgery viated in localized infections.

e Reactions: Depending upon the y of the reaction, may withdraw event of headache, nausea, vomit- icaria, diarrhea, hepatitis, pancre- lood dyscrasias, neuropathy, drug Stevens-Johnson syndrome, skin njection of the conjunctiva and petechiae, purpura, hematuria and uria.

Gantanol®
(sulfamethoxazole)
assures rapid, sustained, antibacterial activity with b.i.d. dosage

Gantanol® B.I.D.
(sulfamethoxazole)

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

chronic illness

B and C vitamins are part of therapy: A deficiency of water-soluble vitamins and chronic illness often go hand in hand. STRESSCAPS capsules, containing therapeutic quantities of vitamins B and C, are formulated to meet the increased metabolic demands of patients with physiologic stress. In chronic illness, as with many stress conditions, STRESSCAPS vitamins are therapy.

332—8-6475



Each capsule contains:

Vitamin B_1 (as Thiamine Mononitrate)	10 r
Vitamin B_2 (Riboflavin)	10 r
Vitamin B_6 (Pyridoxine HCl)	2 r
Vitamin B_{12} Crystalline	4 mc
Vitamin C (Ascorbic Acid)	300 r
Niacinamide	100 r
Calcium Pantothenate	20 r

Recommended intake: Adults, 1 caps daily, for the treatment of vitamin defici cies. Supplied in decorative "remind jars of 30 and 100.

LEDERLE LABORATORIES,
A Division of American
Cyanamid Company, Pearl River, N.Y.

STRESSCAPS®
Stress Formula B+C Vitamins Lederle

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

Organo Oficial

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:
Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:
El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:
Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistémicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.



Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®



There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

SSS

Member of the National Association of Blue Shield Plans

REHABILITATION OF THE INJURED WORKMAN

Herman J. Flax, MD, FACP

Rehabilitation of the injured workman simply means recovery of tax paying status by return to gainful employment. Whenever this is impossible because of the resulting disability, then he must be trained and placed in a job commensurable with the remaining abilities. There is no lucid person, however physically incapacitated, who cannot be trained for some kind of lucrative employment. It is the task of the rehabilitation team to prepare him for this goal.

Despite the simplicity of this dictum, there are many factors that work against successful rehabilitation. In the first place, there is man, himself. By nature, man is the laziest of all animals placed on this earth. It is the rare specimen of *Homo sapiens* who is willing to sweat out a problem when there is an easier solution. As long as he gets paid for being disabled, why "kill the goose that lays the golden egg"? Especially if he is never going to return completely to his former state of health, his present condition doesn't produce pain, and he is not going to get worse or die. In fact he will probably get better, but why admit it, because, most likely, his "income" will drop with improvement.

So much for the severely disabled, but what about the vast majority of the less severely injured, those who would like to collect the maximum of compensation with the minimum of disability? What other factors must be considered to influence rehabilitation? We have already mentioned the basically lazy personality of man. Next, we must add the nature of his work and the environment. Is the laborer happy or at least satisfied with his job? Does he get along well with the supervisor and his companions? Is accident prevention practiced and are safety devices furnished in the factory? The workman will not try very hard to return to a battle field or concentration camp following an injury.

Politics aside, I should like to include at this point a criticism of our "Operation Bootstrap". Although there are great incentives to localize new industries in Puerto Rico, apparently there are few provisions to safeguard the health of the factory worker. Experts of every kind are contacted in constructing the building and mounting the machinery, but an industrial physician is not consulted to control the occupational health hazards. Is it not food for thought, when several years ago over a dozen girls presented themselves to the Industrial Commission for disfiguration following depigmentation of the hands from the chemicals used in making artificial flowers in a modern factory? What about the thirty-odd cases of lead poisoning from manufacturing automobile batteries? How is it possible that at least 80 employees in one of the largest thermometer factories in the world came down with mercury poisoning? Don't let me forget the 100 or more patients who contracted bagassosis in manufacturing cardboard several years ago. There must be other incidents of preventable occupational diseases from similar situations showing a lack of preventive industrial hygiene that the medical staff of the State Insurance Fund can enumerate.

I am sure the actuaries of the State Insurance Fund can tell us how much the treatment of these preventable occupational diseases cost and is costing all of the employers in increased premiums each year. But paying off these patients doesn't rehabilitate them. This type of accident doesn't cure easily, and the rehabilitation of these patients is extremely difficult.

Not only must occupational diseases and work-injuries be prevented, but when they do occur, they must be promptly treated by expert personnel. As on the battlefield, the morale of the injured workman must be safeguarded by immediate emergency care.

From the Physical Medicine and Rehabilitation Service, San Juan Veterans Administration Hospital, and the University of Puerto Rico School of Medicine, San Juan, Puerto Rico.

Presented at Seminar on Medico-Legal Aspects of Workmen's Compensation, Puerto Rico Medical Association Annual Meeting, November 15, 1968, San Juan, Puerto Rico.

The laborer who gets expert first-aid from the very onset of his injury will not become rancorous. My experience over the past quarter-century pin-points the usual cause of prolonged rehabilitation in laborers with minimal disabilities to the lack of proper and prompt first-aid, and to lackadasical medical follow-up.

Once the laborer complains of an injury, he must be treated with all the skill and understanding of the physician. I believe we owe more to the injured workman than any patient, and we should check him more often. The doctor must sit down with him, take a complete history as well as an inventory of diseases by systems, if the latter is not on file and up to date, and do a complete physical examination. The laborer may believe his backache is due to lifting a box. A good physician knows that there are many other causes of backache, and he must make a differential diagnosis. Each simple injury must be given the royal treatment.

It is a good rule to overtreat minor injuries in the beginning rather than tell the patient he has nothing of importance. Your services will be appreciated, and the initial pain and discomfort from the injury soon will be forgotten and not burned into the subconscious to plague the efforts of the rehabilitation team at a later date.

It goes without saying that the injured workman should receive the best medical and surgical care available. This does not mean definitive treatment only for a few in a University Medical Center but for everyone. Deformity as a result of poor orthopedic care cannot be abolished with the best of rehabilitation techniques. These cases hang on indefinitely in the physical therapy and occupational therapy departments, never improving despite the best efforts of the therapists. The cost of treatment is high, the disability rating is the maximum, and the poor result is always available for criticism as long as the patient lives.

Another requirement for successful rehabilitation is early physical medicine especially adapted for injured workmen. The British (1) always have been experts in this field, and Storms (2) cultivated these techniques for rehabilitation of the injured workmen in Canada and Puerto Rico.

Time does not permit a detailed discussion of these methods. Suffice it to say that only the most expert rehabilitation personnel should treat these patients. The prime purpose of early and continued physical medicine is to prevent joint stiffness and muscular atrophy and to restore full range of joint motion and muscle strength as quickly as possible. The injured workman must not be allowed to waste away his time and muscles through inactivity. A full-day's program of physical, occupational, exercise and recreational therapy must be prescribed as soon as rapport can be established with the patient.

The bedfast individual must be given the best nursing care available with emphasis on bed posture, prevention of decubitus ulcers and deconditioning as well as a program of light crafts for diversion. Special care must be taken to check bed posture frequently when projecting movies or watching television. Group exercises must be provided for bed patients to prevent generalized muscle atrophy, mobilization of calcium from the bones, stagnation of tissue fluids, and poor respiratory exchange. A regulated routine of conditioning must be started immediately post-op., and in many cases instruction in post-op. exercises and mobilization techniques must be given pre-op.

It is not difficult for the ambulatory patient to fit into a regular daily schedule of activities if he has been kept occupied while in bed. Each therapy is now definitely oriented towards complete rehabilitation, to return the injured workman to his job in as short a time as possible. There should be a skillful integration between the physical modalities, remedial exercises, occupational therapy, vocational retraining, craft work and other recreational therapy so as to bring out the maximum effort on part of the injured workman without tiring him or producing pain. Throughout these activities the therapists should become oversolicitous of their patients' welfare and curtail their participation at the onset of any adverse symptoms. Psychologically, this overprotection is very valuable to emphasize that the patient's comfort and well-being are more important than therapy.

As the patient's stamina increases, his regime changes to include more strenous exercises and other therapeutic procedures. The craft work, for example, has given way to specific occupational therapy simulating the patient's job, the so-called "work-test". For those who never will be able to return to their original work, and who are mentally feasible, a program of vocational retraining is started concurrent with the other modalities of rehabilitation.

Much valuable time is lost if vocational counselling and retraining is delayed until the patient is discharged after receiving the maximum physical medical care and given a disability rating. A great deal can be done during the active rehabilitation

program. A potential laborer should not have to wait one single day, let alone six or more months, for vocational retraining. If this provision is not present in our workmen's compensation laws, it is high time that it be included.

Rehabilitation should not be considered the third phase of medical practice. It should be incorporated into patient care from the preventive stage of occupational health and accident prevention through all the steps of medical and surgical care, through the definitive rehabilitation program, vocational rehabilitation, job placement and the final follow-up.

Rehabilitation is a team effort that requires a large number of experts, who should be used at the most optimum times. It is better for the social worker to survey the home, family and environment of a paraplegic as soon as the diagnosis is established and not six months later because the patient has not received his compensation checks and his family is starving. What good is an orthotist to a patient with a radial nerve palsy if he cannot deliver a splint until three months after ordered because of too much work? How much more meaningful is the service of the vocational counselor when he can formulate the vocational rehabilitation plan with completed psychometric studies long before the disabled patient is discharged. These are but a few of the additional methods available to continously motivate the injured workman towards complete recovery.

In summary, the rehabilitation of the injured workman should be a smooth integration of medical and surgical procedures with social and economic adjustments and vocational retraining, if necessary, to return him to his family and community as a bread winner. This process should advance not by means of jerky, jarring stages, but smoothy, barely perceptible progression, from the moment of injury to return to employment. Each factory, every farm and business should have access to a preventive industrial medical program to safeguard occupational health as well as provide complete facilities for the best first-aid or emergency care.

Throughout all services, the disabled patient must come first. His motivation to return to work depends primarily on the capabilities of the staff that treats him. His employer has paid the highest premium for the best available coverage to insure his laborer's health and treat his injury regardless of cost. A competent and complete rehabilitation program is by far the best and in the long run the cheapest way to protect the interests of the injured worker, the employer, the insurance carrier and of society as a whole.

References

1. *Colson, J. H. C.:* The Rehabilitation of the Injured, Vol. 2, Remedial Gymnastics, London, Cassell and Co., Ltd., 1947.
Mennell, J. B.: Physical Treatment by Movement; Manipulation and Massage, 5th ed., Philadelphia, P. Blakiston, Son & Co., 1945.
Wale, J. O.: Tidy's Massage and Remedial Exercises, 10th ed., Baltimore, The Williams and Wilkins Co., 1961.
Gardiner, M. D.: The Principles of Exercise Therapy, 3rd ed., New York, The MacMillan Co., 1963.
2. *Storms, H. D. in Kessler, H. H.:* Principles and Practice of Rehabilitation, Philadelphia, Lea and Febiger, 1950.

DETERMINATION OF STOOL FAT:
Comparison of Van de Kamer's and Friedner's Methods

Marta Cancio, PhD
W. Torres de Rivera, MNS
Conrado F. Asenjo, PhD
R. Menéndez-Corrada, MD

The method of Van de Kamer (1) for quantitative fecal fat determination has become the "standard" throughout the world, although it is not directly applicable to estimation of fecal fat derived from medium chain triglycerides, as Van de Kamer himself made very clear in 1953 (2). A new method was proposed by Friedner in 1967 (3) in an attempt to include the medium chain triglycerides in the determination of total fecal lipids.

Both methods have been compared while conducting fat balance studies in tropical sprue patients receiving medium chain triglycerides as the main source of fat in the diet.

Materials and Methods

In Van de Kamer's procedure, feces are saponified with concentrated potassium hydroxide in ethanol, giving a solution which contains the soaps derived from the neutral fats and the fatty acids and also the soaps which were originally present in the stool. By adding HCL to the alkaline solution, the fatty acids are liberated. Ethanol is then added and the fatty acids are extracted with petroleum ether. The concentration of ethanol is so chosen that after the mixture has been shaken, the petroleum ether and the acid ethanol layers separate quickly; this separation is expedited by adding a small amount of amyl alcohol. In an aliquot of the petroleum ether layer, the fatty acids are titrated with alkali. Thymol blue is used as the indicator. Calculations are carried out assuming an average molecular weight of 284 for fatty acids in the stool. Results are expressed in terms of grams of total fatty acids excreted per 24 hours. Usually this represents the mean of three consecutive days, in order to exclude the influence of daily fluctuations caused by the variability of intestinal motility.

Friedner's method involves collection of samples for three consecutive days under ethanol, homogenization in alcohol, adding alcohol to a known volume, acidification of an aliquot of the homogenate, and extraction of lipids with petroleum ether. This extract is evaporated to dryness and the residue is weighed.

Three chemists participated in the work being reported. One performed the Van de Kamer procedure, another one performed Friedner's method, and the third one performed gas chromatographic analyses of the fatty acid composition of the samples (4) extracted by both the Van de Kamer's and the Friedner's methods.

A number of samples were distributed as unknowns. These were obtained from the freezer, and corresponded to patients who had had steatorrhea while receiving medium chain triglycerides in the diet.

Fat balance studies were performed on tropical sprue patients with the MCT and the STD diets (4). Stool samples were also analyzed both by the Van de Kamer and Friedner methods as well as by gas chromatography as described above for the "unknown" samples.

Results

Figure 1 summarizes the results obtained from one of the unknown samples, corresponding to a patient who had steatorrhea while receiving MCT in the diet. In this figure Method A is Van de Kamer's and Method B is Friedner's. Total excretion of fat in grams per twenty four hours is represented by the column height. Within each column the quantity of each of the different fatty acids as determined by chromatography contributing to the total is represented. Results of the two methods were similar quantitatively and qualitatively.

Figure 2 presents the chromatogram of the sample described in Figure 1. The high percentages of palmitic acid, oleic acid, and stearic acid can be appreciated as well as the low percentages of octanoic acid and of other medium chain fatty acids, which were the predominant ones in the diet received by the patient under study.

Figure 3 presents a chromatogram of the MCT diet. The high percentages of the medium chain fatty acids, (C_8 and C_{10} mainly) can be observed.

From the General Medical Research Laboratory and the Medical Service of the VA Hospital and Department of Biochemistry and Nutrition of the University of Puerto Rico School of Medicine, San Juan, Puerto Rico.

Presented at the Annual Meeting of the Puerto Rico Medical Association, November 15, 1968.

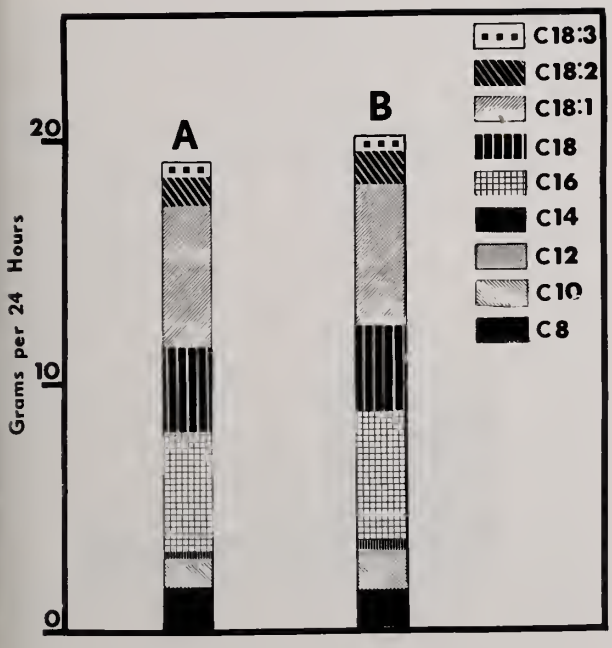


Fig. 1: *Comparison of results obtained for an unknown sample by Van de Kamer's (A) and Friedner's (B) methods in terms of total fat and in terms of the quantity of each of the fatty acids contributing to the total.*

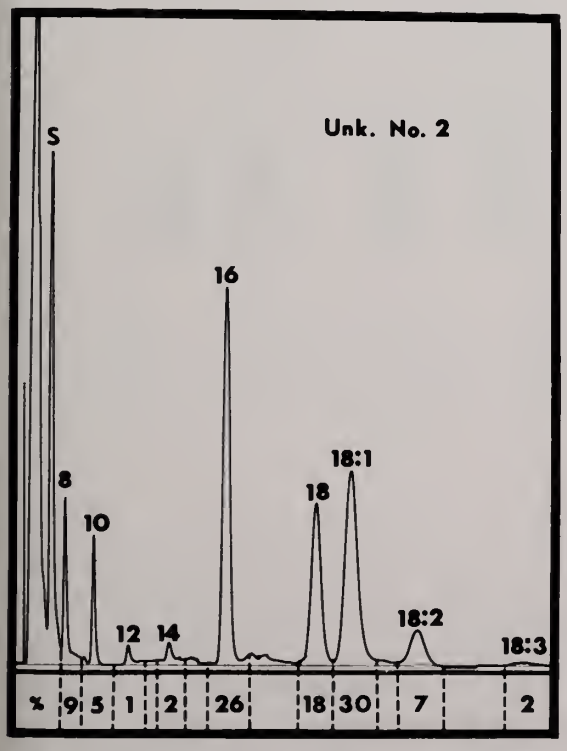


Fig. 2: *Chromatogram of unknown sample described n Fig. 1.*

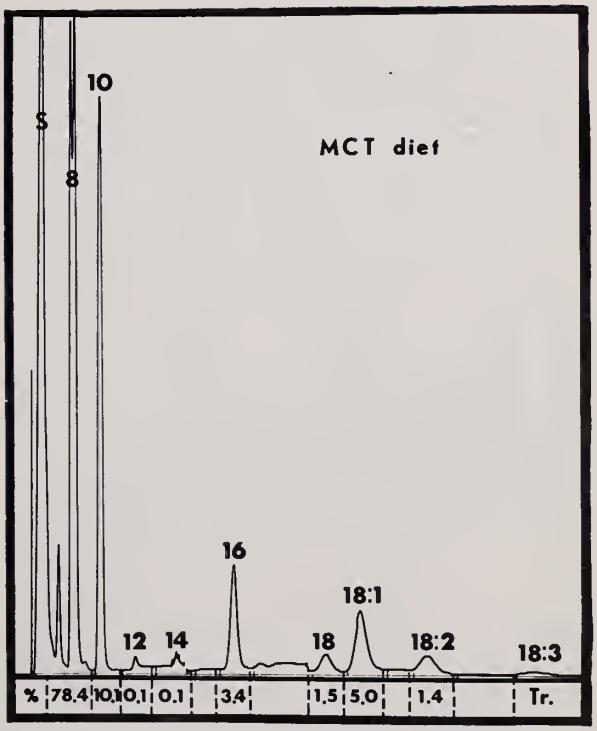


Fig. 3: *Chromatogram of the fatty acids in the MCT diet.*

Figures 4a and 4b summarize the results of fat balance studies performed with the steatorrhea test diet containing mainly long chain triglycerides (STD) followed by the MCT diet in two patients with tropical sprue. In each case results of the two methods are compared. Results show, by the two methods, that medium chain triglycerides are absorbed normally by these patients as they are not present in the feces in appreciable quantities. A higher total fat excretion in the period of diet change is observed in each case. The chromatograms corresponding to these particular periods (Pt1-F15 and Pt2-F7) are presented in Figures 5 and 6. The chromatogram corresponding to period F-10 of patient No. 2, with no steatorrhea during the MCT diet period, is also presented in Figure 7.

Figure 5 represents the chromatogram for period F15 of patient No. 1, corresponding to the period of diet change from STD to MCT, as mentioned above. It can be observed that the steatorrhea is produced by long chain fatty acids which were present in the preceding diet (STD), possibly due to a preferential absorption of the medium chain fatty acids present in the MCT diet which was introduced during this period.

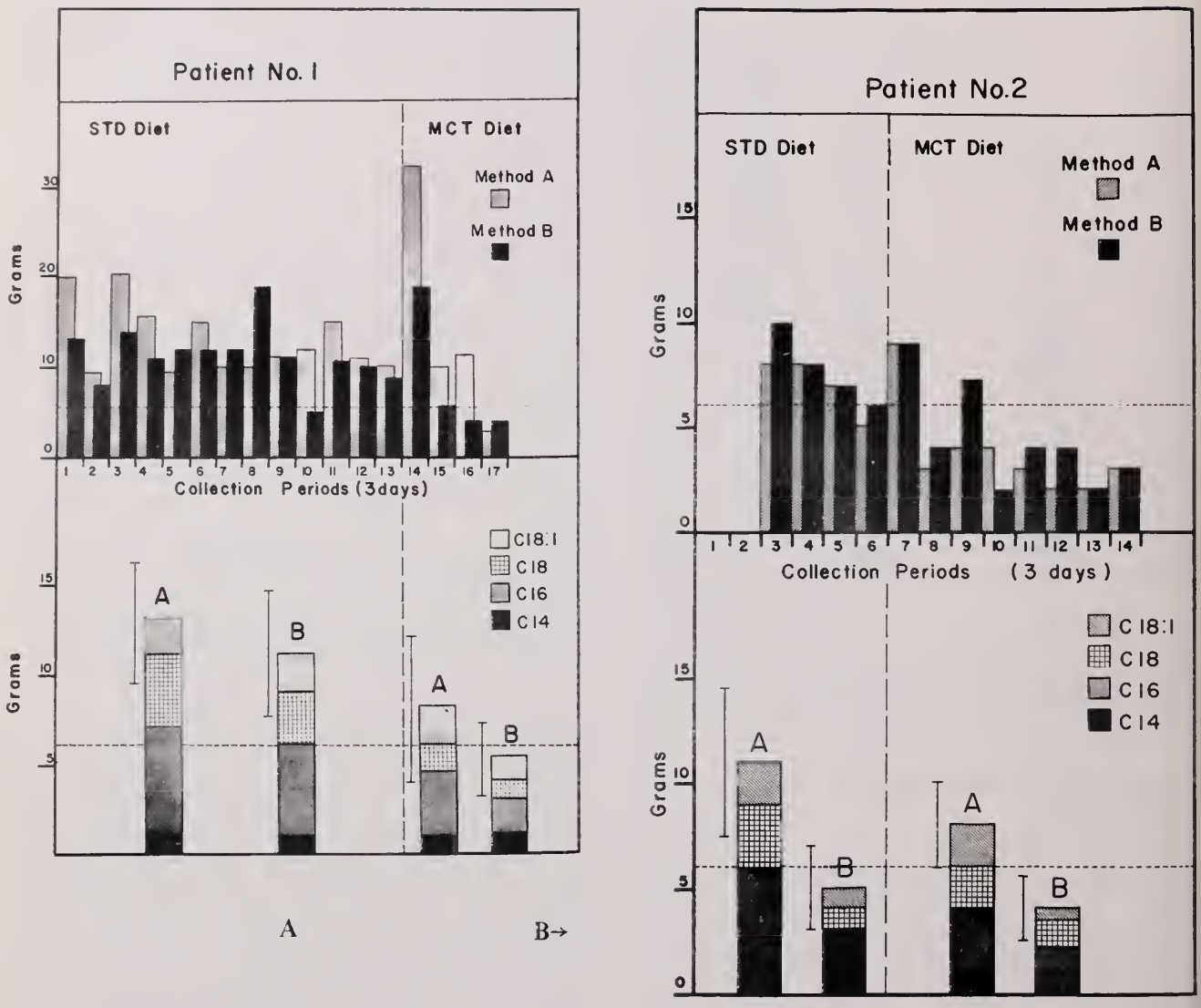


Fig. 4A and 4B: *Summary of results of fat balance studies in two tropical sprue patients during ingestion of STD and MCT diets obtained by Van de Kamer's and Friedner's methods, as well as by gas chromatography of fatty acids. (Method A - Van de Kamer; Method B - Friedner). Bar on top part of figures represent total amount of fecal fat in grams per twenty-four hours for each collection period of study. The bars in the lower part of the figures represent the average amount of fecal fat for the whole period of study under each diet (plus or minus one standard deviation). Each bar is subdivided to give the average amount of each of the fatty acids contributing to the total.*

Figure 6 represents the corresponding period of diet change from STD to MCT for patient No. 2 (period F7). The same effect can be seen in this patient during the period of diet change.

Figure 7 is the chromatogram for period F-10 of patient No. 2. During this period the patient had no steatorrhea. It can be observed that the composition of the fecal fat from a patient ingesting the MCT diet is very similar to that of a normal control. Less than six grams of fat are excreted per day, the main constituents being palmitic acid, stearic acid and oleic acid, possibly of endogenous origin.

Discussion

The validity of a number of papers on MCT absorption (4, 5, 6) has been preserved by the lucky

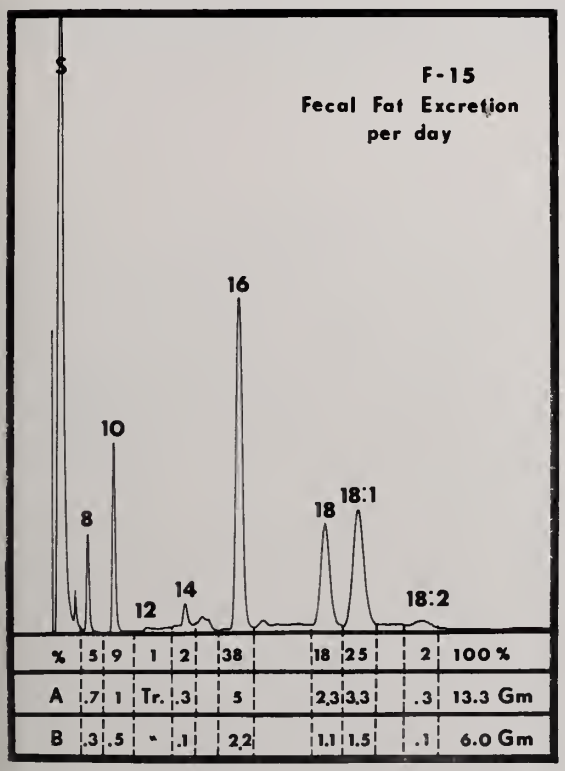


Fig. 5: *Chromatogram of fecal fatty acids during period F-15 of patient No. 1.*

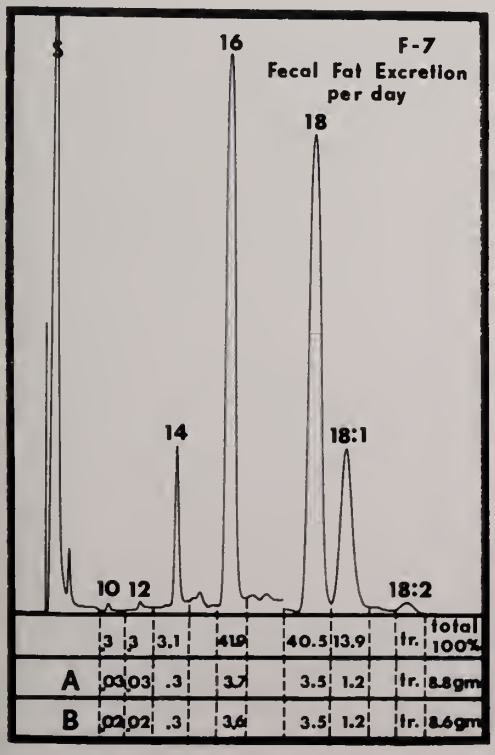


Fig. 6: *Chromatogram of fecal fatty acids during period F-7 of patient No. 2.*

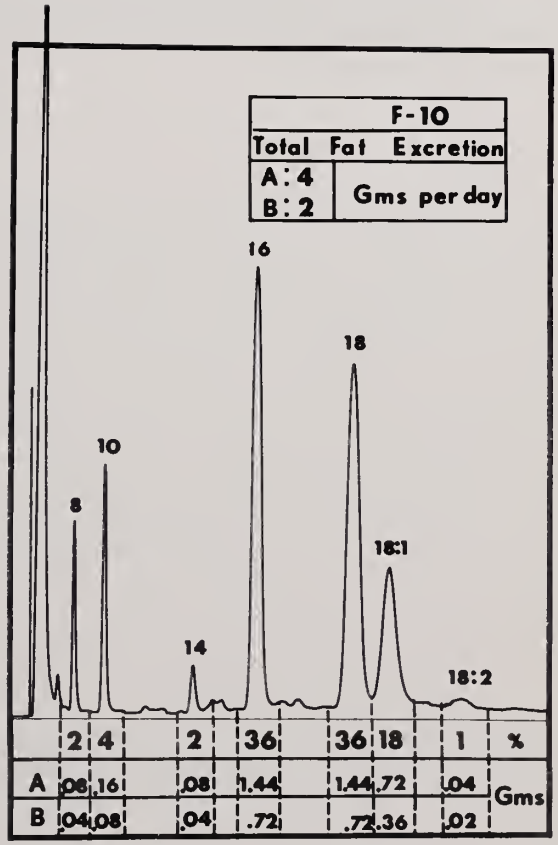


Fig. 7: *Chromatogram of fecal fatty acids during period F-10 of patient No. 2.*

accident that the relative partition of fatty acids in the Van de Kamer extraction system varies almost inversely with their molecular weights. For octanoic acid, the principal fatty acid of MCT, with molecular weight of 144, recovery is about 50 percent. On the other hand the molecular weight used in Van de Kamer's procedure, 284 is 1.97 times, almost twice the molecular weight of octanoic acid, so that upon calculation of results the amount of fatty acids is being overestimated by a factor of two. These two errors just about cancel each other in the final result. It is for this reason that results by both methods appear to be comparable and seem to be equally useful for studies on fat absorption.

Summary

A comparison of two methods for determination of total fecal fat has been made. The methods of Van de Kamer and Fiedner were performed on stool samples from tropical sprue patients on fat balance studies during ingestion of the steatorrhea test diet

followed by the medium chain triglycerides diet.

No significant difference was found in the results obtained by both methods.

Resumen

Se ha hecho un estudio comparativo de los métodos de Van de Kamer y el de Friedner para el análisis químico de grasa total en las heces fecales. Con este propósito, se analizaron las muestras de heces fecales obtenidas de pacientes que sufrían de esprú tropical. Estos pacientes se sometieron a un estudio de balance de grasa en el cual ingerían inicialmente una dieta para detectar esteatorrea y durante un segundo período en el cual ingerían una dieta con un contenido relativamente alto de trigliceridos de cadena mediana.

No se demostraron diferencias significativas en los resultados obtenidos en el análisis de grasas por ambos métodos.

Acknowledgment

Thanks are due to Mrs. Rosa P. de Lluberes and Mr. José M. León for the technical assistance; to Mr. Benjamín Calderón for preparation of illustrations; to Mr. José J. Muntaner for the photographic work; and to Mrs. Brunilda González for careful supervision of the patients.

References

1. *Van de Kamer, J. H., Ten Bokkel-Huinink, H., and Weyers, H. A.:* Rapid method for the determination of fat in feces. J. Biol. Chem. 177: 347, 1947.
2. *Van de Kamer, J. H.:* Quantitative determination of the saturated and unsaturated higher fatty acids in fecal fat. Scand. J. Clin. and Lab. Invest. 5: 130, 1953.
3. *Friedner and Moberg:* Determination of total fecal lipids including medium-chain triglycerides. Clin. Chem. Acta, 18: 345, 1967.
4. *Cancio, Marta, Menéndez-Corrada, R. and Asenjo, C. F.:* Effect of fatty acid structure on absorption of fats by sprue patients. Bol. Asoc. Méd. P. Rico 59: 67, 1967.
5. *Cancio, Marta and Menéndez-Corrada, R.:* Absorption of medium chain triglycerides in tropical sprue. Proc. Soc. Exp. Biol. and Med. 117: 181, 1964.
6. *Senior, John R.:* Medium Chain Triglycerides. Transactions of a Special Symposium held at the Annenberg School of Communications by the Division of Graduate Medicine, University of Pa., March 9 and 10, 1967. University of Pa. Press 300 pp. 1967.

A REVIEW:

URINARY CALCULI:
Pathogenesis and Therapeutic Considerations

Julio V. Rivera, MD, FACP

Urine is a complex solution which in addition to crystalloids contains a number of organic radicals which thry chelation or other mechanisms alter the solubility of the former. In addition to the concentration of the various substances, other factors such as acidity, rate of flow and the presence of inhibitors to crystal aggregation influence their precipitation out of solution. Howard and Thomas (1) have described the finding in normal urine of an unidentified substance, apparently a small peptide, which prevents calcification of rachitic cartilage. The urine of patients who are stone formers will calcify rachitic cartilage and lacks this substance. Citrate forms soluble chelates with calcium and magnesium (1). Silicates have been shown in vitro to negate the action of inhibitor peptides. They are a common component of calculi in cattle but their importance in humans remains to be established (2).

The most common components of urinary tract stones, calcium oxalate, uric acid, calcium phosphate, cystine and magnesium ammonia phosphate have in common their scarce solubility. At the usual concentration of calcium, orthophosphate and uric acid, urine is saturated with these components. In fact, supersaturation of urine by some of these materials is easily demonstrated, the concentration not infrequently exceeding twice the saturation level (3, 4, 5). It is thus not surprising that precipitation should frequently occur and lead to the formation of calculi.

The process which result in a break in this unstable equilibrium have only recently been clarified to a certain extent thru animal experimentation.

Composition of Urinary Calculi

Determination of the crystalline components of urinary calculi often gives clues to the metabolic derangement that led to its formation and may suggest an approach to therapy. The examination of calculi must include not only quantitative determination of the substances present but information as to the order in which they were deposited. Calcium oxalate and magnesium ammonium phosphate thus may be the major components of stones which were formed about a nucleus of uric acid or cystine. Failure to recognize the presence of the latter may mislead efforts at therapy.

Older chemical methods for the examination of stones have been shown to be unsatisfactory. They have been replaced by the use of the polarizing (petrographic) microscope and X-ray difraction technics (11, 12, 13, 14). The characteristic geometric arrangement of atoms in crystalline structures affects the transmission of light and X-rays producing patterns which are specific enough to permit accurate identification of very small quantities. The petrographic method appears to be the most sensitive and less expensive of the two (12). Using these techniques it is possible to examine cross sections of calculi and reconstruct their history.

Bladder calculi are reported to contain uric acid and urates much more frequently than do kidney stones (13, 14, 15). Other studies from the United States and Europe show a similar distribution. Table I gives the results of two studies of renal calculi (12, 14) and our findings in a small group of cases at this hospital. The components of calculi formed in the kidneys are quite different from those originating in the urinary bladder.

Pathogenesis

The finding a year ago by Randall (6) of "milk patches" in the renal papillae in autopsy material provided a lead as to the initial steps in the pathogenesis of calculi. Vermooten (7) found that these concretions may be found in 17 percent of kidneys examined post mortem. They are 4 times more frequent in whites than negroes. The models of oxalate stones associated

From the Radioisotope and Medical Services, Veterans Administration Hospital, San Juan, Puerto Rico; and the University of Puerto Rico School of Medicine.

TABLE I: URINARY STONE CONSTITUENTS *

Component	Prien (12)	Rivera	Herring (14)
CaC_2O_4	32.7	35.3	
CaC_2O_4 + apatite	34.2	51.2	73.06
CaC_2O_4 + apatite + uric acid		2.3	
Apatite	3.4	1.1	6.80
$MgNH_4PO_4$	.3		
$MgNH_4PO_4$ + apatite	15.5	4.5	9.22
$MgNH_4PO_4 + CaC_2O_4$	3.2		
$CaHPO_4$	1.9		1.34
Uric acid	5.8	4.5	7.48
Cystine	2.9		.88
Other			1.22

* - *All figures represent percent of all stones examined.*

with oxaluria produced by a pyridoxine deficient diet (8) or the administration of ethylene glucol (9) and those resulting from the administration of oxamide (10) have allowed serial observations of stone formation. From these experiments it has been concluded that crystallization of these substances in the collecting ducts where urine is maximally concentrated is the first step. Once started, this nidus provides the locus for the precipitation of more of the sparsely soluble material much in the same way that the addition of small formed crystals or a foreign body to a supersaturated solution results in the crystallization of the excess material in it. It has been shown that this initiating event may be of brief duration. This may have a clinical counterpart in the occurrence of a period of dehydration or dietary excess as the initial factor in the human. Once the process is started, growth of the calculus presumably continues slowly till it becomes clinically evident as it causes obstruction to the flow of urine.

Under particular circumstances various factors such as increased production of constituent crystalloids because of metabolic disturbances, reduction of urine volume, stasis, changes in the reaction of the urine or in the excretion of protective or chelating substances might accelerate or control this basic process.

Components of Urinary Calculi

Calcium stones: Calcium is by far the most commonly found component in urinary calculi in most areas of the world (11 - 16). In our study of urinary stones, calcium compounds were also the most frequently found.

The concentration of calcium and phosphate in the urine is such as to exceed by far the solubility product of calcium phosphate. Crystallization does not occur universally because of the effect of various factors, particularly the binding of calcium ions by many substances in urine, especially citrate. Urea (17) and amino acids (18) also increase the solubility of calcium salts. The latter may explain in part the infrequency of urinary calculi in Fanconi syndrome in the presence of hypercalciuria.

There are several aspects of the renal excretion of calcium which are important in understanding the formation of calcium-containing calculi. First, it should be noted that, in the presence of normal intestinal and kidney function and absence of skeletal disease, urinary excretion of calcium changes only slightly within wide ranges of variation in calcium content

of the diet (19). A calcium deficient diet promotes more efficient absorption as long as a supply of vitamin D is available (20). Thus, rigid control of the diet is usually not necessary in the determination of the presence or absence of hypercalciuria and a high calcium diet does not by itself lead to hypercalciuria. As is explained below, control of sodium intake is actually more important in this respect.

Several factors influence urinary calcium excretion. Hypercalcemia is usually accompanied by hypercalciuria and very low serum calcium levels are associated with virtual absence of calcium in the urine. The glomerular filtration rate is also important. As this falls with any disease, tubular reabsorption is more complete. Decreased glomerular filtration rate, as may occur in hyperparathyroidism may result in normal urinary calcium excretion in that disease in the presence of hypercalcemia (16).

The renal handling of calcium follows a pattern quite similar to that of sodium. Ninety-eight percent of the calcium in the glomerular filtrate is reabsorbed, mostly in the proximal tubule. Between cortex and medulla a calcium gradient exists, apparently as a result of active reabsorption at the loop of Henle (22), a situation similar to the case of sodium.

Reduction of the sodium content of the diet results in a low urinary calcium (16). The effect is apparently mediated thru contraction of extracellular fluid volume. A similar effect is produced by the administration of thiazide diuretics (22).

Parathyroid hormone controls the renal tubular threshold to the reabsorption of calcium. Experimental injection intravenously or into the renal artery results in increased tubular reabsorption (23). Thus, only when hypercalcemia is present in hyperparathyroidism will hypercalciuria occur and, even then, not invariably so.

Ingestion of carbohydrate and of protein increases calcium excretion. In fact, an exaggeration of the hypercalciuric effect of carbohydrate has been suggested as a possible etiological factor in calcium calculi (24).

Increased inorganic phosphate ingestion or its intravenous infusion decreases renal calcium output. The mechanism here appears to be deposition of calcium phosphates in bone (25). The opposite effect results from the administration of aluminum gels which reduce intestinal absorption of phosphates.

Metabolic acidosis, regardless of its origin, causes hypercalciuria. Increased bone resorption appears to be the main mechanism involved.

Cortisol, growth hormone, thyrocalcitonin and thyroid hormones all have effects on calcium metabolism but diseases of their organs of origin have not been found to be associated with urinary calculus formation.

Hypercalciuria is found in about one third (16) of patients with calcium stones. Excessive bone resorption (as is seen in hyperparathyroidism, "senile" osteoporosis, immobilization, renal tubular acidosis) or increased gastrointestinal absorption (milk-alkali syndrome, vitamin D intoxication, sarcoidosis) may be operative.

Perhaps the most common of conditions associated with hypercalciuria is "idiopathic hypercalciuria". In this condition hypercalciuria occurs in the absence of hypercalcemia and it is apparently the result of excessive intestinal absorption (26). In contrast to the case in sarcoidosis, hypercalciuria in this condition is not alleviated by cortisone. It has been postulated that these patients constitute an extreme variation of the normal where dietary calcium is absorbed somewhat more efficiently. In these patients salt restriction and the administration of thiazides which reduce urinary calcium are effective therapeutic measures (22). Phosphates are also of value.

Oxalate stones: Although oxalate is one of the most common component of urinary stones, most patients who harbor these do not have any detectable disorder of oxalate metabolism and the urine does not contain excessive amounts of this substance. Calcium oxalate mono and dihydrate are the usual crystalline materials found in calculi.

Increased oxalate excretion in man has been found in association with excessive intake, pyridoxine deficiency, primary hyperoxaliuria with glycolic aciduria and primary hyperoxaluria with l-glyceric aciduria (26). Excessive intake of spinach, rhubarb or parsley is reported as the cause of oxalate intoxication but not as a cause of calculi.

Primary hyperoxaluria is a metabolic disease where there is a deficiency of the enzymes α-ketoglutarate: glyoxylate carboligase or D-glyceric dehydrogenase. It usually has its initial manifestations in early childhood. Nephrolithiasis followed by infection, chronic renal failure and growth retardation usually lead to death before attainment of an adult age. Acute arthritis, cardiac involvement and hyperuricemia may also be present. Occasionally the disease may manifest in adults (27).

The diagnosis of this condition depends on the

demonstration of increased urinary excretion of oxalate above the normal of 10-55 mg per day. Values usually exceed 100 mg but with the onset of renal insufficiency may return to the normal range (27).

The study of the metabolic disorders in the two forms of this rare condition has led to the experimental investigation of compounds which may inhibit the oxidation of glyoxylate to oxalate by glycolic acid oxidase. Two compounds, hydroxymethane sulfonic and sulfinic acids are being studied (26).

Another therapeutic approach to the problem of hyperoxaluria is the administration of substances which may increase its solubility in urine. A high phosphate intake and the use of magnesium oxide have been proposed (1, 15).

Both these measures may apply in the treatment of patients with oxalate stones even in the absence of hyperoxaluria who constitute the bulk of stone formers. Controlled clinical trials of these therapeutic approaches have not, however, yet been reported.

Uric acid stones: Uric acid is found as a component of urinary calculi in approximately 5-15 percent of the cases in most localities in North America, Europe and South America (29). In Israel, Thialand, Turkey and certain regions of India, uric acid calculi are much more frequent (30). In our small study group only 4.5 percent of stones contained significant amounts of uric acid. Certain patient groups, particularly victims of gout and myeloproliferative diseases have a higher incidence of uric acid stones than the general population.

Important in the pathogenesis of uric acid calculi is the relation of the ionization of uric acid to the pH of the solvent. Within the slightly alkaline pH range of plasma, uric acid is almost completely dissociated, while at the usual acid pH of urine one half or more is undissociated (29). As uric acid is much less soluble than its sodium salt, normally acid urines containing average concentrations of uric acid are supersaturated.

As might be expected, uric acid stones are found to occur almost solely in acid urines. Interesting has been the finding that most persons who are uric acid stone formers have relatively acid urines throughout the day and night, the usual postprandial alkalinization being largely subdued (28). Various studies suggest that these persons may have a defect in the production by the renal tubular cells from glutamine of ammonia which is normally responsible for the neutralization of hydrogen ions in the tubular fluid with the formation of ammonium ions (31). The defect here may be one of reduced production of glutamine in the liver or an enzymatic error in the tubular epithelium itself. The theory is supported by the finding that patients with gout given glycine-^{15}N excreted $^{15}NH_4$ in smaller than normal amounts while unusually high amounts of ^{15}N were found in the N-9 and N-3 positions of excreted uric acid (32). This would seem to explain also the increased production of uric acid in these cases.

In the Lesch-Nyhan syndrome, a rare familial disease of childhood characterized by mental retardation, chorioathetosis, self-mutilation, increased uric acid production and sometimes urinary calculi, the disorder in uric acid metabolism has been found to be due to absence of guanine hypoxanthine phosphoribosyl transferase (33). This results in reduced regeneration of these nucleotides and thus breakdown in their feedback role upon the rate-limiting reaction which indicates purine synthesis. A similar defect has been found in some cases of gout (34).

In the myeloproliferative disorders, lymphoma, lymphosarcoma, polycythemia vera and chronic granulocytic leukemia which are characterized by increased rates of cell reproduction and breakdown, augmented urinary excretion of uric acid is frequent and is associated with the formation of uric acid stones. During the administration of chemotherapeutic agents which accelerate uric acid production pronounced crystalluria may lead to an acute obstructive uropathy. Patients with the gout syndrome secondary to myeloproliferative disorders are particularly subject to chronic renal damage associated with urinary overexcretion of uric acid which results in the occurrence of calculi and pyelonephritis in one third to one half of them (35, 36).

Increased extrarenal fluid loss as is seen in warm dry regions and during the warm seasons in other areas not only results in increased concentration of urinary solutes thru reduced solute volume, but also leads to higher acidity which as noted above markedly reduces uric acid solubility. Uric acid stones are seen particularly frequently in the desert regions of the Middle East (37); however, their proportional frequency has not been observed to change seasonally in other more temperate areas (38). Chronic diarrheas of varied etiology are also associated with an increased incidence of uric acid stones (39).

In a small number of patients overproduction and thus overexcretion of uric acid may occur which is

not manifested by hyperuricemia (37). Uric acid stones may occur in these persons. In other subjects overconsumption of purines and proteins may produce sufficient uricosuria to lead to crystallization. Iatrogenic hyperuricosuria in patients treated with uricosuric drugs for gout carries a known risk in the possible increased production of urinary calculi if adequate precautions for insuring a large flow of relatively alkaline urine are not taken.

In diseases characterized by defective tubular reabsorption such as Wilson's disease and Fanconi syndrome uricosuria is also present but the characteristic alkalinity of the urine does not favor uric acid calculogenesis (32).

Increased fluid intake, particularly in the early evening and the administration of alkali salts (sodium bicarbonate-potassium citrate mixtures), or acetazolamine in an attempt to keep urinary pH above 6.0 are well established measures in the control of uric acid calculi. The control of excessive intake of purine and protein rich foods is also advisable.

The recently introduced xanthine oxidase inhibitor allopurinol has provided an additional tool. This compound is oxidized to oxipurinol which has a similar but more prolonged effect (29). Experience so far has shown this drug to be a relatively safe agent. The theoretical possibility that it may result in the production of xanthine stones has only rarely materialized (39).

Xanthine stones: Calculi composed predominantly of xanthine are quite rare. Only over 40 had been reported up to 1967 (40). Xanthine xalculi have been usually associated with xanthinuria, a rare defect of purine metabolism characterized by deficiency of the enzyme xanthine oxidase which is responsible for the conversion of hypoxanthine and xanthine to uric acid. They are thus the main end product of purine metabolism in these cases. Xanthine being the least soluble is the one to crystallize in urine when their concentration is high. These calculi, like uric acid stones, are radioducent. In these patients the presence of very low serum and urinary uric acid concentrations is characteristic. Because excretion of oxipurines is very efficient their blood levels remain low.

The current importance of xanthine stones lies in the fact that there is reason to expect that their incidence may increase as a result of the treatment of patients with gout and myeloproliferative disorders with the xanthine oxidase inhibitor allopurinol which produces a metabolic situation similar to that existing in xanthinuria.

Cystine stones: Cystine, being the least soluble of the amino acids, is the only one found as a main component of urinary calculi. Cystinuria is not a rare condition, being found in 1:250-1:600 persons in population surveys (41). The metabolic defect here is one of the renal tubular transport responsible for the reabsorption of amino acids (41). This deficiency is also demonstrable in the intestinal mucosa which permits the use of biopsies of this organ in the study of these cases (42). Normal urinary cystine excretion usually does not exceed 18 mg/gram creatinine.

Although the formation of calculi in this condition may have its onset in childhood, the peak incidence is in the third decade. This is the only clinical manifestation of the disease, but calculi tend to be recurrent and often cause obstruction, infection and renal damage. Cystine calculi are radio-opaque, but less so than calcium oxalate stones. The nitroprusside test is used as a survey tool (43) but abnormal urines should be examined by chromatography and determination of total disulfide content. It is of interest that cystinuric patients may pass stones of mixed composition, even predominantly phosphatic stones when there is infection (41). The urine of cystinuric patients often contains abnormal amounts of other amino acids.

Although dietary restriction of protein with consequent reduction of intake of the cystine precursor methionine will reduce the former's excretion, other methods of therapy are more effective. Alkalinization of urine is effective in doubling the solubility of cystine when pH is increased from 7.0 to 7.8 (44). When closely adhered to, alkalinization plus the promotion of a high urine volume may be effective in the prevention of stone formation (45).

Crawhall, Scowen and Watts (46) demonstrated that the solubility of cystine in urine is increased by the addition of D-penicillamine and that when given to patients cysteine-penicillamine and penicillamine disulfide are excreted in the urine and excretion of cystine is reduced. These observations have led to the therapeutic use of D-penicillamine and N-acetyl penicillamine with cystinuria which is the most effective treatment now available (41).

Role of Infection

Infection is frequently associated with urinary calculi as well as with obstructive urological disease.

It is possible that infectious exhudates may provide nuclei for the formation of calculi but it appears that the most important mechanism involved is the alteration of urinary pH by organisms which produce ammonia by their action on urea (15). Apatite and ammonium magnesium phosphate calculi are most commonly formed.

Conclusion

Table II presents a summary of the more important

TABLE II: URINARY CALCULI: PATHOGENESIS AND THERAPY

Component	Clinical	Pathogenesis	Diagnosis	Therapeutic Measures
Calcium	90 percent of all calculi Majority "idiopathic" Hyperparathyroidism Immobilization Vitamin-D intoxication	Hypercalciuria Increased bone resorption Augmented intestinal absorption thru normal mechanisms	Urine calcium > 300 mg/day Serum Ca, P Alkaline phosphatase Serum proteins	Control of specific causes Low sodium diet Thiazide diuretics Phosphates by oral route Low carbohydr. diet Low calcium diet
Oxalates	70 percent of all calculi Idiopathic - adults Hyperoxaluria-onset usual in early childhood; occasionally starts in adult; acute arthritis, cardiac involvement; infection and renal failure	No hyperoxaluria in most cases; hyperoxaluria with glyceric aciduria - defect of α-keto-glutarate: glyoxylate carborligase Hyperoxaluria with l-glyceric aciduria - defect of D-glyceric dehydrogenase. Pyridoxine deficiency.	Urine oxalate > 100 mg/day	Pyridoxine? Inhibition of glycolic acid oxidase by hydroxymethane-sulfonic acid or sulfinic acid
Uric Acid	5-15 percent of all calculi Gout Myeloproliferative diseases; Lesch-Nyhan syndrome; chronic diarrhea.	Hyperuricemia; increased uric acid synthesis Increased breakdown of cells Dehydration - climatic, chronic diarrheas Acid-urine-impaired synthesis of NH_4 from glutamine Lesch-Nyhan syndrome-defect of guanine hypoxanthine phosphoribosyl transferase.	Urine pH < 6 Serum uric acid Urine uric acid	Alkaline salts ($NaHCO_3$ + K citrate) Low protein, low purine diet Allopurinol
Xanthine	Very rare Radiolucent calculi	Defect of xanthine oxidase	Low serum and urine uric acid High urine oxypurines	Alkaline salts Low purine diet High fluid intake
Cystine	3 percent of all calculi Peak incidence in 3rd decade Frequent calculi; infection	Defect renal tubular transport mechanism for absorption	> 18 mg/g creatinine in urine Nitroprusside test in urine Biopsy intestinal mucosa-determination of transport defect	Low protein diet Alkali salts Penicallamine
Magnesium ammonium phosphate	Infection; urinary obstruction	Alkalinity of urine caused by bacterial growth	Urine culture Evidence of obstruction	Antibiotics Surgical relief of obstruction

therapeutic measures discussed in the preceding pages, those which are well established and also experimental approaches with promise of clinical usefulness. The material reviewed points to a hopeful outlook in the medical treatment of urolithiasis which complements surgical measures directed to the relief of obstruction and drainage of foci of localized infection when these occur. It behooves all of us to keep informed of future developments in the management of this common disease.

References

1. *Howard, John Eager; Thomas Jr., W. C.:* Control of crystallization in urine. Amer. J. Med. 45: 693, 1968.
2. *Keeler, R. F.:* Silicon metabolism and silicon-protein matrix interrelationships in bovine urolithiasis. Ann. New York Acad. Sc., 104: 592, 1963.
3. *Fried, F. A. and Vermeulen, C. W.:* Artificial uric acid concretions and observations on uric acid solubility and supersaturation. Invest. Urol. 2: 131, 1964.
4. *Sperling, O. and de Vries, A.:* Studies on the etiology of uric acid lithiasis. 11. Solubility of uric acid in urine specimens from normal subjects and patients with idiopathic uric acid lithiasis. J. Urol. 92: 331, 1964.
5. *Elliot, J. S. and Ribeiro, M.:* Calcium oxalate solubility in urine: The state of relative saturation. Invest. Urol. 5: 239, 1967.
6. *Randall, A.:* An hypothesis for the origin of renal calculus. New Engl. J. Med. 214: 234, 1936.
7. *Vermooten, V.:* The origin and development in the renal papilla of Randall's calcium plaques. J. Urol. 48: 27, 1942.
8. *Andrus, S. B., Gershoff, S. N., Farragalla, F. F., and Prien, E. L.:* Production of calcium oxalate renal calculi in vitamin B_6 deficient rats. Lab. Invest. 9: 7, 1960.
10. *Vermeulen, C. W., and Lyon, E. S.:* Mechanisms of genesis and growth of calculi. Amer. J. Med. 45: 684, 1968.
11. *Prien, E. L., and Frondel, C.:* Studies in urolithiasis. 1. The composition of urinary calculi. J. Urol. 57: 949, 1947.
12. *Prien, E. L., and Prien, Jr., E. L.:* Composition and structure of urinary stone. Amer. J. Med. 45: 654, 1968.
13. *Lagergren, C.:* Biophysical investigations of urinary calculi. Acta Radiol. 133 * (Supp.) 1, 1956.
14. *Herring, L. C.:* Observations in the analysis of ten thousand urinary calculi. J. Urol. 88: 545, 1962.
15. *Gershoff, S. N.:* The formation of urinary stones. Metabolism, Clinical and Experimental. 13: 875, 1964.
16. *Epstein, F. H.:* Calcium and the kidney. Amer. J. Med. 45: 700, 1968.
17. *Medes, G.:* Solubility of calcium oxalate and uric acid in solutions of urea. Proc. Soc. Exper. Biol. Med. 30: 281, 1932.
18. *Klement, R., and Weber, R.:* Das Verhalten von Hydroxylapait in serum und ahnlichen Losungen. Biochem. Ztsch. 308: 91, 1941.
19. *Knapp, E. L.:* Factors influencing the urinary excretion of calcium. L. In normal persons. J. Clin. Invest. 26: 182, 1946.
20. *Nicolaysen, R., Eeg-Larsen, N., and Malm, O. J.:* Physiology of calcium metabolism. Physiol. Rev. 33: 424, 1953.
21. *Ullrich, K. J., and Jarausch, K. H.:* Untersuchungen zum Problem der Harnkonzentrierung und Harnverdunnung. Pflugger's Arch. ges. Physiol. 262: 537, 1956.
22. *Nassim, J. R., and Higgins, B. A.:* Control of hypercalciuria. Brit. Med. J. 1: 675, 1965.
23. *Kleeman, C. R., Bernstein, D., Rockney, R., Dowling, J. T., and Maxwell, M. H.:* Studies on the renal clearance of diffusible calcium and the role of the parathyroid glands in its regulation. Yale J. Biol. Med. 34: 1, 1961.
24. *Lemann, J., Jr., Piering, W. F. and Lennon, E. J.:* Carbohydrate-induced calciuria and in calcium oxalate stone formation. New Engl. J. Med. 280: 232, 1969.
25. *Goldsmith, R. S. and Ingbar, S. H.:* Inorganic phosphate treatment of hypercalcemia of diverse etiologies. New Engl. J. Med. 274: 1, 1966.
26. *Peacock, M., Hodgkinson, A., and Nordin, B. E. C.:* Importance of dietary calcium in the definition of hypercalciuria. Brit. Med. J. 3: 469, 1967.
27. *Williams, H. E., and Smith, Jr., L. H.:* Disorders of oxalate metabolism. Amer. J. Med. 45, 1968.
28. *Gershoff, S. N. and Prien, E. L.:* Effect of daily MgO and vitamin B_6 administration to patients with recurrent oxalate kidney stones. Amer. J. Clin. Nutrit. 20: 393, 1967.
29. *Gutman, Alexander B., and Yu, T. F.:* Uric acid nephrolithiasis. Amer. J. Med. 45: 765, 1958.
30. *Londsdale, K.:* Human stones. Science 159: 1199, 1968.
31. *Pitts, R. F.:* The renal metabolism of ammonia. Physiologist 9: 97, 1966.
32. *Gutman, A. B. and Yu, T. F.:* An abnormality of glutamine metabolism in primary gout. Amer. J. Med. 35: 820, 1963.
33. *Seegmiller, J. E., Rosenbloom, F. M., and Kelley, W. N.:* An enzyme defect associated with a sex-linked human neurological disorder and excessive purine synthesis. Science 155: 1682, 1967.
34. *Kelly, W. N., Greene, M. L., Rosenbloom, F. M., Henderson, J. F. and Seegmiller, J. E.:* Hypoxanthine-guanine phosphoribosyl transferase deficiency in gout. Ann. Intern. Med. 70: 155, 1969.
35. *Yu, T. F., and Gutman, A. B.:* Uric acid nephrolithiasis in gout. Predisposing factors. Ann. Intern. Med. 67: 1133, 1967.
36. *Yu, T. F.:* Secondary gout associated with myeloproliferative diseases. Arthritis Rheumat. 8: 765, 1965.
37. *Atsmon, A., De Vries, A., and Frank, M.:* Uric acid Lithiasis. Elsevier Publishing Company, Amsterdam, 1963.
38. *Leonard, R. H.:* Quantitative composition of kidney stones. Clin. Chem. 7: 546, 1961.
39. *Bennett, R. C., and Jepson, R. P.:* Uric Acid stone formation following ileostomy. Australian and New Zealand J. Surg. 36: 153, 1966.
40. *Seegmiller, J. E.:* Xanthine stone formation. Amer. J.

Med. 45: 780, 1968.
41. *Crawhall, J. C., and Watts, R. W. E.:* Cystinuria, Amer. J. Med. 45: 736, 1968.
42. *Rosenberg, L. E., Downing, S., Durant, J. L., and Segal, S.:* Cystinuria: Biochemical evidence of three genetically distinct diseases. J. Clin. Invest. 45: 365, 1966.
43. *Crawhall, J. C., Saunders, E. P., and Thompson, C. J.:* Heterozygotes for cystinuria. Ann. Human Genet. 29: 257, 1966.
44. *Dent, C. E., and Senior, B.:* Studies on the treatment of cystinuria. Brit. J. Urol. 27: 317, 1955.
45. *Dent, C. E., Friedmann, M., Green, H. and Watson, L. C.:* Treatment of cystinuria. Brit. M. J. 1: 403, 1965.
46. *Crawhall, J. C., Scowen, E. F. and Watts, R. W. E.:* Effect of penicillamine or cystinuria. Brit. M. J. 1: 585, 1963.

CASE REPORT:

MENINGITIS DUE TO LISTERIA MONOCYTOGENES

Fernando A. Córdova, MD
María Medina, MS

The gram-positive bacillus known today as *Listeria monocytogenes* was first described by Murray, Webb and Swann (1) in 1926 when they isolated the organisms from the livers of sick rabbits and guinea pigs. Because of a marked monocytosis observed in these animals, the name *Bacterium monocytogenes* was used. An identical organism was isolated a year later from a species of African mice and was called *Listerella hepatolytica*. In 1929, Nyfeldt (2) recovered the organism from the blood of patients with an illness resembling infectious mononucleosis and used the name *Listerella monocytogenes hominis*. The name *Listeria monocytogenes* was adopted officially in 1940.

Since 1929, over a thousand cases of human listeriosis have been reported throughout the world. More than four fifths of these have been described in the last decade, as awareness of the importance of the infection has grown. In Puerto Rico, human listeriosis was first reported in 1948 by Felsenfeld (3), who encountered the organism in the blood of a woman who had developed fever and cervical adenopathy following a Caesarean section. The case exhibited atypical lymphocytes and a monocytosis of 11 percent. She recovered after treatment with sulfonamides. A second case was not reported until 1967 when Torregrosa (4) isolated the relatively rare serotype 4a from the purulent drainage of an incisional infection.

The present case is believed to be the first one of listeric meningitis reported in Puerto Rico.

Case Report

A 56-year old male was admitted to the San Juan Veterans Administration Hospital on April 17, 1968 as a transfer from another hospital. For two to three weeks prior to admission the patient had been under considerable strain, getting little rest, on account of the terminal illness of his mother. On April 13 he developed high fever, severe headache and prostration. He received a penicillin injection and salicylates without relief. As mental confusion ensued, he was taken to a hospital the next day. There he was found to be semistupurous, with high fever and marked nuchal rigidity. The peripheral white cell count was 21,800/cu.mm with 90 percent polymorphonuclears. A spinal tap yielded a hazy appearing fluid, with a cell count showed 300 lymphocytes and 50 polymorphonuclears. The spinal fluid protein was 180 mg percent, the glucose 30 mg percent. A total serum bilirubin was 3.6 mg percent.

The patient was started on streptomycin and chloramphenicol. He improved over the next 24 hours, becoming more alert and responsive, but still febrile. On April 16 the spinal fluid culture grew a gram-positive rod sensitive to kanamycin and ampicillin. Treatment was changed to these two drugs, and the patient was transferred the next day to San Juan Veterans Hospital.

The patient had been known to be a mild hypertensive for several years, and had been taking hypotensive drugs irregularly. There was a history of moderately heavy alcohol consumption. His mother had died of progressive cerebrovascular disease the day prior to the onset of his illness. A grandmother had died of pulmonary tuberculosis several years previously.

On admission, the temperature was 103° F, the blood pressure was 170/100 mm Hg, the pulse rate 88/minute. He appeared restless and uncomfortable, but was well oriented and cooperative. There was no nuchal rigidity. The conjunctivae were injected bilaterally. There was slight narrowing of the retinal arterioles, but no papilledema. The heart and lungs were normal. There was no visceromegaly or adenopathy. Neurologic examination at this time was negative.

The initial hemoglobin was 15.3 gm percent. The white cell count was 6,917/cu.mm, with 58 percent neutrophils, 4 bands, 36 lymphocytes, and 2 monocytes. The urine was acid, with a specific gravity of 1,012, a 4+ reaction for albumin, and 20 to 25 rbc/hpf. A spinal tap was performed with an opening pressure of 240 mm H_2O. A hazy fluid was obtained, with a cell count showed 133 lymphocytes. The spinal fluid glucose was 13.6 mg percent, the protein 160 mg percent. Gram stain, as well as Ziehl-Nielsen stain and India ink preparation were negative. Blood urea nitrogen was 17.5 mg percent, fasting blood glucose 91 mg percent, creatinine 1.55 mg percent, total bilirubin

From the Medical and Laboratory Services, Veterans Administration Hospital, San Juan, Puerto Rico and the Department of Medicine, University of Puerto Rico School of Medicine.

Excerpts of this paper were presented at the Annual Meeting of the Puerto Rico Medical Association, November 15, 1968.

2.0 mg percent, of which 0.3 mg percent was direct. The SGOT was 152 units, the SGPT 52 units, the LDH 820 units. A prothrombin time was 16 seconds as compared to a control of 13 seconds. In view of the above spinal fluid findings, the patient was started on antituberculous therapy with streptomycin and insoniazid. Ampicillin was also given. He continued febrile, spiking to 103°F, but seemingly less toxic, and subjectively improving. An intermediate strength tuberculin test developed 5 millimeters of induration at the end of 48 hours.

On the fourth hospital day, *Listeria monocytogenes* was identified from the spinal fluid. The organism was resistant to penicillin and ampicillin, but susceptible to streptomycin, tetracycline, chloramphenicol, kanamycin and erythromycin. The same organism was also identified from the spinal fluid specimen which had been obtained from the hospital where the patient was initially seen.

After this organism was identified, the patient was started on tetracycline, and ampicillin was discontinued. Streptomycin was continued as since admission. On this regime he became afebrile after three days and remained so for the rest of his hospital course. On the tenth day of tetracycline therapy, he developed a prurient macular rash which was interpreted as a drug reaction, and all medications were discontinued. The rash subsided shortly thereafter, and there was no relapse or recurrence of fever. A spinal tap repeated sometime later showed a normal fluid, which failed to grow any organisms. Blood cultures and culture of the conjunctivae were also negative for *Listeria monocytogenes.*

Further laboratory studies included negative VDRL, Coomb's test, cold agglutinins, and heterophile antibody titer. Several subsequent urinalyses were normal. Repeated hemograms did not show any essential change from the admission count. A reticulocyte count was 1.8 percent. The initial slight abnormalities noted in liver function tests reverted to normal values but the BSP retention remained at 11 percent. A needle biopsy of the liver revealed essentially normal liver architecture with mild swelling of some liver cells.

Serum albumin was 3.0 gm percent, serum globulin 2.85 gm percent. Paper electrophoresis done on the first hospital week showed an essentially normal pattern. Immunoglobulin determinations (radial diffusion immunoplates, Hyland) done on the twelfth hospital day showed an IgG of 1100 mg percent (normal 600-1200 mg percent), IgA of 360 mg percent (normal 120-280 mg percent), and an IgM of 44 mg percent (normal 116 mg percent). Both the protein electrophoresis and the immunoglobulin assay were repeated three months later without any significant change from these values. Transferrin determinations (radial diffusion immunoplates) at these same dates were both 350 mg percent (normal 240-280 mg percent). After discharge, the patient has continued well, without any evidence of neurologic deficit up to the present date.

Discussion

Interest in listeric infections has been increasing because of the knowledge that the infection occurs widely in man and in many animals. Although the bacilli grow well on ordinary media, they may not be recognized since they may be mistaken for diphteroids or hemolytic streptococci. They are small, motile, gram positive coccoid rods approximately 0.5 x 1 micron in size, which characteristically form small, round colonies, showing beta hemolysis on blood agar. The hemolytic zones tend to be narrower than those of streptococci, and the fact that the organism is motile, makes differentiation from *Streptococcus pyogenes* or from diphteroids comparatively easy. On broth cultures, the organism assumes a more coccoid appearance, and older cultures tend to become gram negative (See Fig. 1).

For isolation, media which have broad spectrum growth capacity, such as blood agar and thioglycollate broth, are commonly used. In addition to primary plate cultures, it is wise to make an enrichment broth culture suspending part of the specimen in trypticase broth, and refrigerating it for later use

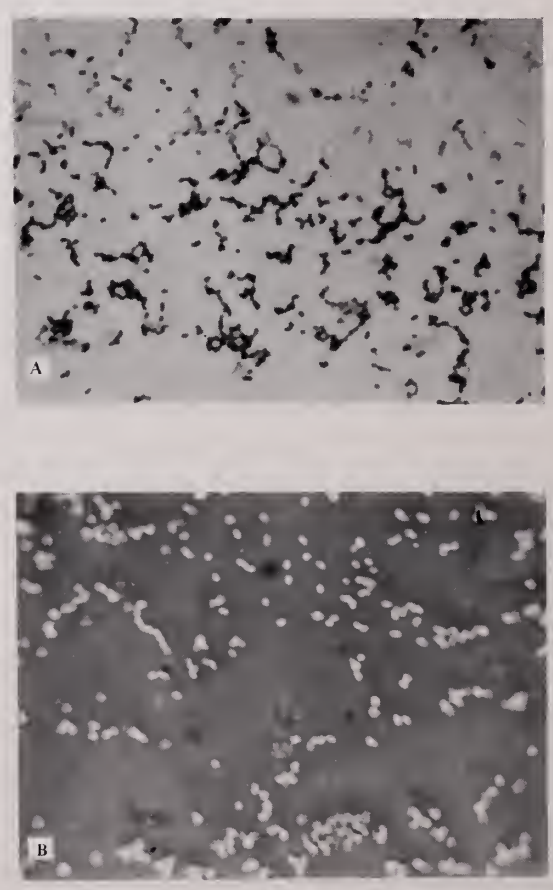


Fig. 1: *Microphotographs of* L. monocytogenes. *(a) Gram stain. (b) Negative phase contrast view. Specimen shows a coccoid appearance and some gram negative organisms as these were taken from a broth culture over 24 hours old.*

if necessary. If the first cultures fail to grow, transfers from the refrigerated enrichment or from a refrigerated specimen may grow out rapidly, as indicated by Seeliger and Cherry (5).

In our case, in addition to primary plates and thioglycollate cultures, part of the spinal fluid specimen was refrigerated. The original blood agar plates were negative after 48 hours' incubation at 37° C under aerobic and anaerobic conditions, at which time plating using the refrigerated specimen was done. First signs of growth were noticed in the original thioglycollate culture and trypticase blood broth after three days' incubation at 37° C. On the other hand, the set of plates inoculated with the refrigerated sample had growth before the 48 hours of incubation. Smears of these cultures showed the gram positive bacilli. The further identification tests and biochemical reactions are summarized on Table I.

L. monocytogenes has been classified into several serotypes, based on the presence of somatic and flagellar antigens. Typing was carried out in our case, using polyvalent O antiserum for *L. monocytogenes* (Difco) with positive results. With Listeria O antiserum, type 1, visible clumping occurred promptly, but negative results occurred with the type 4 antiserum. Most *L. monocytogenes* strains from North America are type 4b, with type 1 the next most frequent (6, 7, 8).

Fluorescent antibody techniques have been used to demonstrate the organism in tissue or meconium (9). Of the several serologic tests available, none is sufficiently consistent to be of practical value in diagnosis, which therefore rests on the isolation and proper identification of the organism from the specimen by the bacteriologist (6, 8).

L. monocytogenes has been isolated from water, silage and mud, as well as from numerous mammals and birds (6, 7, 10). Most human cases have been reported from urban areas with little evidence of contact with infected animals (7, 11). Ingestion of contaminated milk or egg and respiratory spread have been postulated as possible sources of contagion. *L. monocytogenes* has been found in the human vagina and male urethra without producing any symptoms, but implying venereal transmission (11, 12). Apparently healthy subjects have at times yielded positive cultures from mouth, pharynx and blood, suggesting the existence of a carrier state (6). It has been suggested that L-forms may be an opportunistic normal flora organism for many subjects, persisting in tissues, with reversion to the classical, virulent parent form, when conditions are favorable (13).

Human listeriosis may affect any age group, but newborns and subjects over 40 years appear to be the most vulnerable, and comprise 90 percent of all cases. While it appears that systemic wasting illnesses, diabetes mellitus and neoplasias, particularly lymphomas, are more susceptible to infection than normals, the majority of reported cases have no underlying disease present (7, 14, 15, 16). Susceptibility during pregnancy has been suggested because of the high incidence of perinatal infections (6, 11, 12).

When *L. monocytogenes* attacks man, several clinical pictures may result (See Table II), but there is a preference for the central nervous system. This is as true of the newborn as of older subjects. Meningitis is the most common result, with meningoencephalitis occurring from extension of the purulent leptomeningitis to the adjacent cerebral cortex. A very rare form in man, though the usual in ruminants, is a non-meningitic primary pontobulbar encephalitis (17). At necropsy, the findings are non-

TABLE I: BIOLOGICAL AND BIOCHEMICAL REACTIONS OF LISTERIA MONOCYTOGENES

Motility	-	Positive	Dextrose	-	Positive
Catalase	-	Positive	Lactose	-	Negative
Urease	-	Negative	Maltose	-	Positive
Citrate utilization	-	Negative	Mannitol	-	Negative
			Sucrose	-	Negative
Methyl red test	-	Positive	Salicin	-	Positive

Incubation was done at 37° C and cystine trypticase agar was the medium used for biochemical fermentation tests.

TABLE II: LISTERIC INFECTIONS IN MAN

Meningitis	Conjunctivitis
Encephalitis	Cervicoglandular
Septicemias of pregnancy	Abscesses
Repeated abortion	Cutaneous lesions
Granulomatosis infantiseptica	Endocarditis
Septicemias	Mycotic aneurysm
Pneumonias	Urethritis

specific. The brain and meninges are hyperemic and studded with grayish white foci or necrotic areas. Collections of exudate may be present around the base of the brain. Microscopically, the picture is also non-specific, with small microabcesses with areas of necrosis in which the bacterium may be seen, surrounded by infiltration with neutrophiles and some mononuclear cells. Perivascular cuffing with mononuclears is also frequently seen. In cases associated to overwhelming bacteremia, miliary microabcess formation is seen in all organs, but chiefly liver, spleen and kidney.

Clinically, the signs and symptoms of listeric meningitis are undistinguishable from those expected in any bacterial purulent meningitis. Peripheral blood counts usually show an increase in polymorphonuclears. Monocytosis, or lymphocytosis with atypical lymphocytes is actually rare. The spinal fluid is usually hazy with an increased pressure. The cell count can be a source of confusion, as in our case, for it may reveal either a predominance of lymphocytes, or an increase in neutrophiles. The protein is elevated, with a low glucose. Extreme lowering of the spinal fluid glucose has been associated to a poor prognosis (14). Gram stains may show the gram positive rods intracellularly or extracellularly. Other findings may vary, but may include conjunctivitis, otitis or sinusitis, pneumonia, splenomegaly, liver involvement with focal necrosis or patchy fatty degeneration (18). In our patient, slight alteration of liver function was noted, but the liver biopsy failed to show any characteristic abnormalities.

Neonatal infections comprise the other major group of human listeria infections. These are usually the result of maternal infection, with intrauterine transmission, either via the placenta or intrapartum, although contagion within nurseries has occurred (8, 11). In contrast to the severe illness of the infant, the mother may have either a mild flu-like illness during which listeremia may be demonstrated, or be completely asymptomatic. Early in pregnancy, abortion may result, and it has been implicated as a cause of repeated abortion. Of the pregnancies carried further to term, the infants may be born with a generalized septic picture, known as granulomatosis infantiseptica. These infants, usually premature, are either still born or acutely ill, dying shortly after birth. Meconium smears usually reveal large numbers of the organism, and may permit rapid initiation of therapy. More often, one sees a meningitis which develops after three to four days of life, and carries a slightly better prognosis. It is however, more severe than in the adult, with frequent residual damage (11).

Listeric bacteremias are less frequent, usually occurring in association to systemic illness or to infections of the upper respiratory tract, ears or sinuses. The clinical picture may be mild and non-specific, responds well to treatment, and has a low mortality. Felsenfeld's case (3) falls into this group. The finding of listeremia by Nyfeldt (2) in a group of three cases with fever, lymphadenopathy and atypical lymphocytes, led to confusion of *L. monocytogenes* as the etiologic agent of infectious mononucleosis. Lymphocytosis with atypical cells or monocytosis occurs in 10 to 14 percent of *L. monocytogenes* infections in man (14). Marked monocytosis is produced by *L. monocytogenes* in rabbits and other rodents, but not consistently in other mammalian species. A monocytosis producing lipid substance has been isolated from the bacterial cell membrane (6, 19). Falsely positive heterophile reactions have been produced by listerial agglutinins when incubation is prolonged at room temperature (14), and cross reactants may produce false positive listeria agglutinations in patients with true infectious mononucleosis. At present it is felt that *L. monocytogenes* has no relation to infectious mononucleosis, but may occasionally simulate it or coexist with it.

Less common forms of listeriosis include pneumonias, endocarditis, abcesses, cutaneous lesions, glandular forms, conjunctivitis, mycotic aneurysm, and urethritis (4, 5, 18, 20).

Sensitivity studies have demonstrated that the majority of strains of *L. monocytogenes* are inhibited by penicillin, tetracycline, chloramphenicol, erythromycin and streptomycin. A lesser number is susceptible to ampicillin, cephalothin, kanamycin, novobiocin and methicillin (14). While most authors recommend tetracycline as the drug of choice (4, 5, 6, 8, 12) there is not complete agreement, penicillin and erythromycin (11, 21) or ampicillin (22), being also endorsed. As resistant strains can occur with any of these drugs, it would seem that a combined treatment, guided by sensitivity studies, should be used and kept up for a prolonged period, as relapses have occurred when it has been discontinued too soon (6, 8, 11). On the other hand, some patients have been known to recover from listeric meningitis without the benefit of antibiotics (6, 14).

Work on experimental infections with *L. monocytogenes* has demonstrated that acquired resistance by the host is correlated both to the appearance

of antibodies and delayed sensitivity, and to an increase in the capacity of macrophages to ingest and inhibit the growth of virulent organisms (14, 23, 24, 25). *L. monocytogenes* is a facultative intracellular parasite, whose virulence depends on its resistance to the bactericidal processes within the normal phagocyte. Host resistance to this type of organism in turn depends on an acquired resistance by activated macrophages. Animals who survive *L. monocytogenes* infections show greater effectiveness of individual macrophages and are able to produce new populations of resistant macrophages. They are also able to heal the microabcesses by granuloma-like formations of epithelioid cells (14, 23). This immunity cannot be transferred to non-immune animals by serum from the resistant animals, but it is transferred by the passage of intact living immune macrophages (26). This resistance at a cellular level appears to be a somewhat non-specific mechanism, as infections with other intracellular parasites such as *B. melitensis*, *S. typhosa*, and *M. tuberculosis* will also result in increased cellular resistance to *L. monocytogenes* and vice versa (25, 27). Although Njoku-Obi and Osebold (24) found that immune macrophages resisted destruction by *L. monocytogenes* in vitro only when immune serum was present, Armstrong and Sword (25), who performed similar experiments, concluded that immune serum plays only a minor role in the suppression of intracellular growth. Such a concept is consistent with the poor correlation of agglutination and other serologic tests with severity or recovery from infection, for often in proven *L. monocytogenes* infections, these titers fail to show a significant rise (6, 28).

Conversely, false positive agglutination tests in unexposed subjects are due to cross reactions with such ubiquitous organisms as *S. aureus* and *S. faecalis*. Both IgG and IgM immunoglobulins are present among the listerial agglutinins, but when the IgM fraction is removed from the system, the persistence of IgG listerial agglutinins is more specifically indicative of true *L. monocytogenes* infection (28, 29). Other protein alterations observed in experimental animals include a rise in alpha-2 and beta globulin during the acute phase, as well as the expected late rise in gamma globulin (30).

Klasky and Pickett (31) were able to induce immunity and acquired cellular resistance by inoculation of the protein fraction of the cell wall of *L. monocytogenes*. Unlike in previous experiments where sublethal doses of the whole organism were used to produce immunity, the acquired resistance seemed to be species-specific, and possibly serotype specific. In addition, the immunity induced by use of this protein alone, was not accompanied by the changes in globulins or the rises in agglutinin titers observed when the whole organism was injected. The concept of an antigenic and an immunogenic site located at different cellular positions, suggested by this finding, is consistent with the evidence of a dual mechanism of host defenses, an intracellular macrophage-mediated resistance, together with the lymphocyte derived circulating antibodies. The role played in this scheme by the lipid monocyte producing agent (MPA) from the bacterial cell membrane is still obscure. MPA has been shown to enhance antibody production (6), and the monocytes from *L. monocytogenes* infected rabbits show a greater phagocytic activity than those from normal animals (1). If immunogenic and antigenic functions are also mediated through MPA, the mechanisms are not as yet fully clarified.

Our case, like others, did not show any evidence of disrupted host resistance. The only factor to make him a particularly susceptible subject was the state of fatigue prior to the onset of his illness. Hypogammaglobulinemia was not present. Slight alterations of the immunoglobulin values fall within the values obtained by Maldonado (32) in a series of normal Puerto Rican subjects. Transferrin, which has been found to be elevated in *L. monocytogenes* infections in mice (30), was elevated above the normal in this case. Although decreased in most inflammatory diseases, it may be elevated in the presence of liver damage, and our case showed transient alteration of liver function. As iron has been shown to enhance the growth of *L. monocytogenes*, its metabolism may be involved in the pathogenesis of listeriosis through the activities of listerial hemolysins, or through an effect on the ferritin deposits within phagocytes (33).

The many intriguing characteristics and unsolved questions posed by *L. monocytogenes* should stimulate the alertness of clinicians and bacteriologists in watching for this often overlooked pathogen.

Summary

A case of meningitis due to *Listeria monocytogenes*, type 1, is described. The patient presented with a meningitic picture associated to lymphocytic pleocytosis of the cerebrospinal fluid. *Listeria monocytogenes* was isolated from the spinal fluid. Clinical recovery ensued

after treatment with streptomycin and tetracycline.

Some of the bacteriologic and clinical aspects of listeric infections are reviewed, as well as some of the experimental data on pathogenesis and host resistance to *Listeria monocytogens.*

Resumen

Se describe un caso de meningitis debido a *Listeria monocytogenes*, tipo 1. El paciente presentó un cuadro meningítico asociado a una pleocitosis linfocítica en el líquido cefaloraquídeo, de donde se logró aislar el organismo. El paciente recuperó luego de ser tratado con estreptomicina y tetraciclina.

Se repasan algunos aspectos bacteriológicos y clínicos de la listeriosis, al igual que algunos de los mecanismos concernientes a la patogénesis y las reacciones de defensa del organismo en infecciones con *Listeria monocytogenes.*

References

1. *Murray, E. G., Webb, R., and Swann, M. B.:* A disease of rabbits characterized by large mononuclear leukocytosis caused by a hitherto undescribed bacillus *Bacterium monocytogenes.* J. Path. Bact. 29: 407, 1926.
2. *Nyfeldt, A.:* Etiología de la mononucleóse infectíeuse. Compt. Rend. Soc. Biol. 101: 590, 1929.
3. *Felsenfeld, O.: Listerella monocytogenes* strain isolated from a human source in Puerto Rico. P. R. J. Public Health Trop. Med. 24: 1, 1948.
4. *Torregrosa, M. V.:* Seldom encountered infections with gram positive bacilli. Amer. J. Clin. Path. (In press).
5. *Seeliger, H. P. R., and Cherry, W. B.:* Human listeriosis. Its nature and diagnosis. U. S. Dept. Health, Education and Welfare, Communicable Disease Center, Atlanta, Ga., 1957.
6. *Gray, M. L., and Killinger, A. H.: Listeria monocytogenes* and listeric infections. Bact. Rev. 30: 309, 1966.
7. *Miller, J. K., and Muraschi, T. F.:* Human listeriosis in New York State. N. Y. J. Med. 63: 1822, 1963.
8. *Florman, A. L., and Sundarajan, V.:* Listeriosis among nursery mates. Pediatrics 41: 784, 1968.
9. *Biegeleizen, J. Z.:* Immunofluorescence techniques in retrospective diagnosis of human listeriosis. J. Bacteriol. 87: 1257, 1964.
10. *Welshimer, H. J.:* Isolation of *Listeria monocytogenes* from vegetation.
11. *Maguire, B. J., and Riley, H. J.:* Infections due to *Listeria monocytogenes* in infants and children. Amer. J. Med. Sci. 254: 421, 1967.
12. *Barber, M., and Okubadejo, O. A.:* Maternal and neonatal listeriosis. Brit. Med. J. 1: 735, 1965.
13. *Brem, A., and Eveland, W.:* L forms of *Listeria monocytogenes.* 1. In vitro induction and propagation of L forms in all serotypes. J. Infect. Dis. 118: 181, 1968.
14. *Louria, D. B., Hensle, T., Armstrong, D., Collins, H. S., Blevins, A., Krugman, D., and Buse, M.:* Listeriosis complicating malignant disease. Ann. Intern. Med. 67: 261, 1967.
15. *Simpson, J. F., Leddy, J. P., and Kare, J. D.:* Listeriosis complicating lymphoma. Amer. J. Med. 43: 39, 1967.
16. *Bodey, G. P., Hersh, E. M., and Freirsich, G. J.:* Recurrent *Listeria monocytogenes* meningitis in a patient with acute leukemia. Cancer 21: 619, 1968.
17. *Duffy, P. E., Sassin, J. F., Summers, D. S., and Loorie, H.:* Rhombencephalitis due to *Listeria monocytogenes.* Neurology 14: 1067, 1964.
18. *Finegold, S. M., Bradley, J. G., Campbell, M. K., and Greenberg, A. J.: Listeria monocytogenes* meningitis. Arch. Intern. Med. 93: 515, 1954.
19. *Ghosh, B. K., and Carroll, K. K.:* Isolation, composition and structure of membrane of *Listeria monocytogenes.* J. Bacteriol. 95: 688, 1968.
20. *Navarrete-Reyna, A., Rosenstein, D. L., and Sonnenwirth, A. C.:* Bacterial aortic aneurysm due to *Listeria monocytogenes.* Amer. J. Clin. Path. 43: 438, 1965.
21. *Hoeprich, P. D.:* Listeria infections. Principles of Internal Medicine, T. R. Harrison, ed., Mc-Graw Hill, 5th ed., 1966, p. 1584.
22. *Macnair, D. R., White, J. E., and Graham, J. M.:* Ampicillin in the treatment of *Listeria monocytogenes* meningitis. Lancet 1: 16, 1968.
23. *Mackaness, G. B.:* Cellular resistance to infection. J. Exper. Med. 116: 381, 1962.
24. *Njoku-Obi, A. N. and Osebold, J. W.:* Studies on mechanisms of immunity in listeriosis. 1. Interaction of peritoneal exudate cells from sheep with *Listeria monocytogenes* in vitro. J. Immunol. 89: 187, 1962.
25. *Armstrong, A. S., and Sword, C. P.:* Cellular resistance in listeriosis. J. Infect. Dis. 114: 258, 1964.
26. *Miki, K., and Mackaness, G. B.:* The passive transfer of acquired resistance to *Listeria monocytogenes.* J. Exper. Med. 120: 93, 1964.
27. *Mackaness, G. B.:* The immunological basis of acquired resistance. J. Exper. Med. 120: 105, 1964.
28. *Aalund, Ole; Osebold, J. W., and Murphy, F. A.:* Antibody heterogeneity in experimental listeriosis. J. Immunol. 97: 150, 1966.
29. *Osebold, J. W., and Aalund, Ole:* Interpretation of serum agglutinating antibodies to *Listeria monocytogenes* by immunoglobulin differentiation. J. Infect. Dis. 118: 139, 1968.
30. *Sword, C. P.:* Serum protein alterations induced by *Listeria monocytogenes* infections. J. Immunol. 96: 790, 1966.
31. *Klasky, S., and Pickett, M. J.:* Immunogenicity and specificity of *Listeria monocytogenes* cell walls. J. Infect. Dis. 118: 65, 1968.
32. *Maldonado, N.:* Unpublished data.
33. *Sword, C. P.:* Mechanisms of pathogenesis in *Listeria monocytogenes* infections. 1. Influence of iron. J. Bacteriol. 92: 536, 1966.

CASE REPORT:

PHENYLKETONURIA: *A Family Study*

Paul F. Crosby, PhD
Ana Navarro, MD
Milton L. Matos, BS

Phenylketonuria (PKU) is an inborn error of amino acid metabolism caused by a deficiency of the liver enzume phenylalanine hydroxylase, which catalyzes the hydroxylation of phenylalanine to tyrosine. This disease is characterized by high serum levels of phenylalanine, high levels of phenylpyruvic acid in the urine, and severe mental retardation in most cases. Since the initial report by Folling (1) in 1934, more than five hundred cases have been reported throughout the world, making this disease one of the more common of the inborn errors of amino acid metabolism.

We would like to report on the first documented case of PKU in Puerto Rico, including a study of the siblings and parents.

Materials and Methods

The Diagnostic and Guidance Center for Mentally Retarded Children of the Department of Health, Commonwealth of Puerto Rico, and the Radioisotope Service, Veterans Administration, are conducting a joint screening program on the mentally retarded population of the Clinic. Urines are screened by means of one dimensional paper chromatography and the ferric chloride color test. Urine specimens showing apparent abnormalities in their amino acid patterns are then subjected to 2-dimensional chromatography, or a complete amino acid analysis of blood and urine is made using the automatic amino acid analyzer. Phenylketonuria can be readily detected because fresh urines will give a deep blue-green color with $FeCl_3$ which fades within one hour.

One dimensional paper chromatography, using butanol acetic acid H_2O 12:3:5 as the developing solvent, will cause the migration of phenylalanine to an RF of approximately .65 and the ninhydrin-stained spot can be easily be identified by its location.

The amino acid analyzer was used to quantitate each amino acid. Heterozygosoty was determined according to the method of Perry *et al* (2). Using fasting sera, the molar ratios of phenylalanine and tyrosine are determined in the amino acid analyzer. A ratio of phenylalanine to tyrosine of 1.38 ± .25 indicates heterozygosity for phenylketonuria, whereas a ratio of .90 ± .20 indicates the absence of the defect. The phenylalanine loading test was accomplished by administering 0.1 g phenylalanine per kg body weight to fasting subjects then taking blood samples at 0, 1, 2 and 4 hours. The phenylalanine content was determined by the method of La Due (3). Phenylalanine is oxidized by snake venom L-amino acid oxidase, to phenylpyruvic acid, which in the presence of borate and arsenate ions forms a borate-enol complex, which can be measured spectrophotometrically.

Case Report

During the course of the joint screening program, chromatographic analysis of a random urine sample of the patient disclosed a spot at the approximate RF for phenylalanine. Shortly thereafter the $FeCl_3$ test was performed demonstrating a typical PKU color reaction. The specimen was found to be from a severely retarded 12-year old girl.

The patient was born on August 20, 1956 (weight, 6 lb. 8 oz.), the second child of apparently healthy unrelated parents. Propositus was apparently normal at birth, but the mother noted that she did not appear to be interested in her surroundings at age 8 months. Other developmental milestones included the following: The patient held her head at age 7 months (normal is 2 months), sat alone at 9 months (normal, 6 mo.) turned around and stood up at one year, walked alone at age 5 years. Her vocabulary is limited to "mama" and "papa", which she began to speak to at age eleven. At age 5 patient was treated at the Crippled Children's Center and began to walk. She walks with everted feet and flexure of right leg. At age seven she developed convulsions, and at age 11 she had measles.

Physical examination showed a well-nourished girl of normal height and weight with light brown hair and light brown eyes (See figure 1). Her behavior was characterized as hyperactive, and showed involuntary movements of the hands, movement of hands to the eyes, and rolling of the fingers. EENT examination revealed right internal and left external strabismus. Heart, lungs and abdomen were normal. Neurological examination showed hyperactive deep tendon reflexes and poor gag reflex. The patient does not chew her food but swallows pieces. Psychological evaluation performed on Aug. 20, 1968 using the Vineland Social Maturity Scale – Chronological age 12 years 0 mo. Social age 1 year, social quotient less than 20. Profoundly retarded.

A fasting serum sample was obtained for complete amino

From the Radioisotope Service, Veterans Administration Hospital, San Juan, Puerto Rico; the University of Puerto Rico School of Medicine; and the Clinic for Retarded Children, Department of Health, Commonwealth of Puerto Rico.



Fig. 1: *Photograph of subject.*

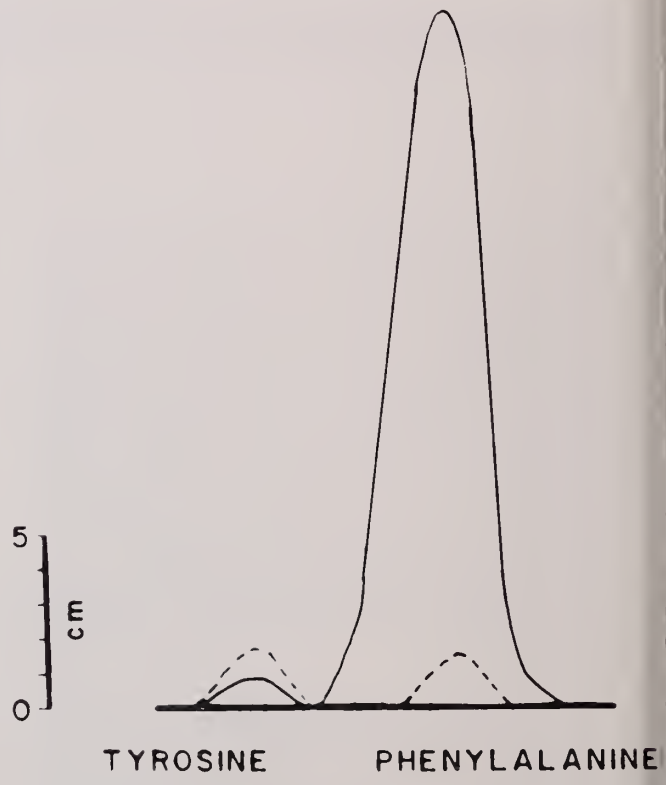


Fig. 2: *Portion of amino acid chromatogram showing plasma tyrosine and phenylalanine content of propositus and control.*

TABLE I: FASTING PLASMA PHENYLALANINE LEVELS OF PROPOSITUS, FAMILY AND CONTROL

Subject	Age	Fasting Phenylalanine mg/100 ml
Propositus (IR)	12 yr.	21.5
Mother (ECR)	35 yr.	2.0
Father (JAR)	34 yr.	1.5
Brother (JAR)	10 yr.	1.6
Brother (LER)	9 yr.	1.4
Sister (MTR)	5 yr.	1.1
Sister (SR) (tested twice)	7 mo.	3.1
Sister (SR) (tested twice)	9 mo.	2.5
Female Control (RC)	11 yr.	1.1

acid analysis. The phenylalanine level was found to be 21.5 mg/100 ml. This compares with normal limits of 1-2 mg/100 ml. Figure 2 is a reproduction of a portion of the amino acid chromatograms of patient and control showing resolution of plasma tyrosine and phenylalanine.

A fasting phenylalanine level of 1.1 mg/100 ml was obtained from a normal child of approximately the same age. An electroencephalogram showed abnormalities suggestive of an organic brain disorder including fast dysrhythmia S2 and an epileptiform pattern.

Family Study:

The propositus is the oldest living child of unrelated white parents of normal intelligence. An older sister died at age 2. According to her parents she had blue eyes and blonde hair and was severely retarded. The family includes two boys aged 10 and 9 and two other girls aged 5 years and 14 months. The mother has a cousin 15 years old, who is severely retarded, and the father has a nephew 3 years old who is also retarded.

Plasma phenylalanine levels of the entire family are shown in Table I.

It was also of interest to determine which members of the family were heterozygous for phenylketonuria. This was done by determining the phenylalanine to tyrosine ratios. Results are listed in Table II.

TABLE II: FASTING PLASMA PHENYLALANINE, TYROSINE RATIOS AND DETERMINATION OF HETEROZYGOSITY OF FAMILY AND ONE CONTROL

Subject	Phenylalanine uM/100 ml	Tyrosine uM/100 ml	P/T	Heterozygous
Father (JAR)	8.8	6.4	1.37	+
Mother (ECR)	11.8	6.8	1.74	+
Brother (JAR)	9.5	6.8	1.40	+
Brother (LER)	8.6	6.6	1.30	+
Sister (MTR)	6.6	7.0	.94	−
Sister (SR)	15.5	12.1	1.27	+
Control (RC)	6.6	7.2	.91	−

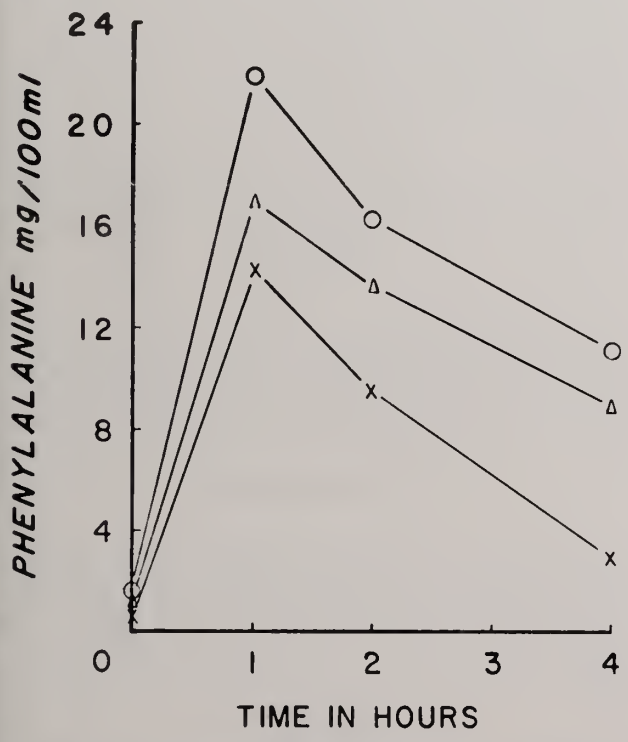


Fig. 3: *Phenylalanine loading test performed on parents and control. One hundred mg phenylalanine/kg administered orally.*

Finally, a phenylalanine loading test was performed on the parents. The load was also administered to a normal subject. Phenylalanine levels are shown in Figure 3. The mode of inheritance of PKU and the heterozygous trait are shown in Figure 4.

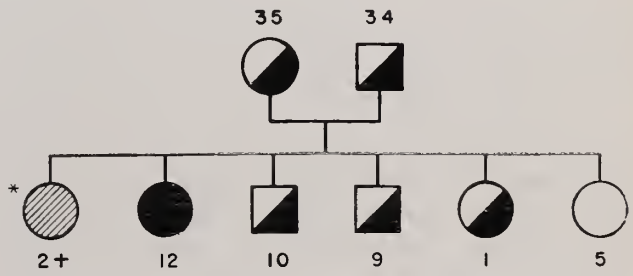


Fig. 4: *Inheritance of PKU and the heterozygous trait. * Not screened, but had light hair and eyes and was profoundly retarded. Died at age 2.*

Discussion

In phenylketonuria there is a deficieney of the liver enzyme system phenylalanine hydroxylase. This system is composed of two enzymes, a labile enzyme requiring NADH (reduced nicotine adenine dinucleotide, DPNH), and a stable enzyme requiring molecular oxygen and the coenzymes NADPH (nicotine adenine dinucleotide phosphate, TPNH) and a pteridine. The first enzyme catalyzes the hydroxylase reaction, whereas the second enzyme is involved in the regeneration of the NADH of the first enzyme. It has been demonstrated that the labile enzyme is deficient in PKU. This enzyme deficieney causes an accumulation of L-phenylalanine in the blood. Some of the excess phenylalanine is metabolized by means of alternate

pathways to phenylpyruvic, phenyllactic, phenylacetic, o-hydroxyphenylacetic acid, and phenylethylamine. Excess phenylalanine will also inhibit tyrosine metabolism, and will also alter the level of amino acids in the blood and the transport of amino acids into the cells. It is not known which of these phenomena is responsible for the brain damage in PKU.

It should also be noted that an excess of phenylalanine in the blood is not always associated with PKU. O'Flynn and co-workers (4) reported on cases of hyperphenylalanemia without PKU. In this syndrome phenylalanine levels are high (ca 20 mg percent), serum tyrosine levels are normal, and the $FeCl_3$ test is negative. Bessman (5) has reported on a family of five children, three of whom demonstrated fasting serum levels of phenylalanine greater than 20 mg percent, and large amounts of phenylpyruvic acid in the urine. However, only one of these children was retarded, the other two had IQs of 90-95 and 95-98 upon continued testing. The general consensus of opinion is that all children under three years of age demonstrating high levels of serum phenylalanine should be treated for PKU. This consists of placing them on a carefully controlled diet designed to reduce the phenylalanine level to between 3-8 mg percent. Too low a level can lead to poor growth, rash and gross aminoaciduria. The value of this dietary treatment has been questioned by some workers in the field, but the vast majority treat all their young patients rather than risk retardation.

Comment

Studies on a case of phenylketonuria have been presented. This is the third patient with an inherited metabolic disorder leading to mental retardation reported in Puerto Rico. Andrews, Crosby and Angel (6) reported a case of histidinemia in 1962 and the following year Jiménez, Sifontes and Sánchez-Longo (7) published on a case of maple syrup urine disease. The present case is that of a twelve-year old, severely retarded child. The criteria needed for the diagnosis of phenylketonuria, namely a high serum phenylalanine level, and a positive ferric chloride test are important, since early diagnosis may prevent mental retardation in these patients. Among the other siblings in this family, there are three heterozygotes for PKU and one normal individual. Heterozygotes for PKU must be followed up, since the probability, although small, exists of their having offspring with the disease.

Thus it is important to perform routine screening tests (Guthrie) (8) in all nurseries to prevent mental retardation of this type.

Summary

Routine urine screening procedures uncovered a case of phenylketonuria in a severely retarded twelve-year old girl. This diagnosis was confirmed by a high fasting serum phenylalanine level. The family history included a severely retarded blue-eyed, blonde girl who had died at age of 2 years. The parents and three of the four remaining children were heterozygous for phenylketonuria.

Resumen

Mediante la prueba rutinaria de cedazo se detectó fenilcetonuria en una niña de doce años con retraso mental arraigado. Se confirmó el diagnóstico por el nivel sérico de fenilalanina elevado, en ayunas. El historial familiar incluyó el caso de una hermana de ojos azules y pelo rubio, muy retardada, que murió a los dos años. Asimismo, los padres y tres de los hijos restantes eran heterozigóticos para fenilcetonuria.

Addendum

Since the preparation of this manuscript, we have found another retarded child whose urine contains abnormal levels of phenylalanine, and demonstrates the color reaction for PKU with the ferric chloride reagent.

Acknowledgment

Thanks are due to Miss Rafaela Robena of the Clinic for Retarded Children for obtaining the samples, to Mr. E. Rivera-Collazo and Mrs. Consuelo Suárez of the Radioisotope Service, Veterans Administration Hospital, for technical assistance, and to Mr. R. Bernabe-Prida and Mr. José Muntaner for the illustrations.

References

1. *Folling, A.:* Uber ausscheidung von phenyl-brenztraubensaure in den harn als stoffwechselanomalie in verbindung mit imbezillitat. Z. Physiol. Chem. 227: 169, 1934.
2. *Perry, T. L., Hansen, S., Tischler, B., and Bunting, R.:* Determination of heterozygosity for phenylketonuria on the amino acid analyzer. Clin. Chim. Acta 18: 51-56, 1967.
3. *La Du, B. N., Michael, P. J.:* An enzymatic spectrophotometric method for the determination of phenylalanine in blood. J. Lab. Clin. Med. 55: 491-496, 1960.
4. *O'Flynn, M. E., Tillman, P., and Yi-Yung Hsia, D.:* Hyperphenylalanemia without phenylketonuria. Amer. J. Dis.

Child. 113: 22-20, 1967.

5. *Bessman, S. P., Wapnir, R., and Due, D.:* Amine metabolism in phenylketonuria, Proceedings of Conference held on Phenylketonuria and Allied Metabolic Diseases, April 6-8, 1966, U. S. Dept. of Health, Education and Welfare, Washington, D. C., 1967, p. 9.
6. *Andrews, G. F., Crosby, P. F., and Angel, C. R.:* Histidinemia, a new metabolic disorder, So. Med. J. 55: 1326, 1962.
7. *Jiménez, A. L., Sifontes, J. E., and Sánchez-Longo, L. P.:* Maple syrup urine disease: Report of the first case in Puerto Rico, Bol. Asoc. Méd. P. Rico 55: 463-468, 1963.
8. *Guthrie, Robert:* A simple phenylalanine method for detecting phenylketonuria in large populations of newborn infants. Pediatrics 32: 338-343, 1963.

EDITORIAL

SAN PATRICIO VETERANS ADMINISTRATION HOSPITAL * AN ERA IS PASSING BY .....



San Patricio Veterans Administration Hospital

Our dream became a reality when in November 1946 the Veterans Administration inaugurated San Patricio VA Hospital. This 200-bed hospital with a good organization, an excellent medical staff, and the most modern medical facilities offered our veterans since its beginning the highest quality of medical care.

Up to that time over 1,000 veterans were receiving medical care in private hospitals in the larger cities of Puerto Rico. Soon after its inauguration, the San Patricio Hospital became the center of our Medical Program and set the standards for treatment of veterans islandwide. Stimulated by this event and encouraged by our medical staff, the majority of these private hospitals initiated improvements in their physical plants, medical staff, and medical facilities. By doing so, the standards of patient care in these private hospitals improved, and our veterans as well as the community as a whole profited from it.

During the four years preceding the establishment of the School of Medicine, San Patricio Hospital was the training ground for a group of young and ambitious physicians interested in teaching. As soon as the School of Medicine opened, several of these physicians left our hospital to form part of the initial faculty of the School with part-time and full-time appointments. Most of our medical staff received Ad Honorem appointments.

Two years later the affiliation of San Patricio Hospital with the School of Medicine in the Residency Training Program was achieved. Since then, in collaboration with the Medical School, we embarked in an ambitious educational program. We have been active in the training of residents in Internal Medicine, Surgery, Radiology, and Physical Medicine, and in recent years in Ophthalmology and Urology. We have dental internship and a dietetic internship, the only ones in Puerto Rico. Our interest was not limited to the training of physicians, but for years we have been participating in the training of residents in Hospital Administration, laboratory technicians, X-ray technicians, social workers, and physical therapists. The physicians and allied health service per-

sonnel that we have trained have moved into the health facilities of the community.

For thirteen years San Patricio Hospital has maintained an active research program and through these years a large number of papers have been generated. These papers have been presented at scientific meetings here and abroad, but specially at the Annual Scientific Program of the Puerto Rico Medical Association. Some of these papers have been published in the Boletín of the Puerto Rico Medical Association and in national journals. We have carried intensive research in sprue and bilharzia that have resulted in newer and improved diagnostic procedures in these two diseases.

San Patricio Hospital initiated the Volunteer Service Program in 1947 and has been the leader in this type of service that has so well developed in our community hospitals.

The modern general hospital concept was initiated at San Patricio in 1962 when a 10-bed open psychiatric ward was added and integrated with the medical and surgical services.

The Veterans Administration established the first Day Care Center in Puerto Rico. The Day Care Center is a place where the psychiatric patient after leaving the hospital goes voluntarily, spends his day, and in the evening returns home to be back with his family. While at the Center, a team formed by a social worker, a psychiatrist, and an occupational therapist supervises whatever activity the patient wants to engage in and helps him in the process of resocialization.

The first Audiology and Speech Pathology Clinic with the most modern and sensitive equipment and the highest trained personnel was inaugurated in 1962. Our veterans as well as some non-veterans have benefited from this service.

Although San Patricio Hospital is a government hospital, service-connected patients living away from the metropolitan area and who cannot come to our Outpatient Clinics are allowed to be treated by a physician or dentist of their choice in their community. More recently we have started the ID Card Program. An ID card is issued to service-connected veterans. With this card they can go to a physician of their choice; the card will serve as an authorization for service. All physicians can participate in this program.

These have been the highlights of the Veterans Administration Medical Program in Puerto Rico since the opening of San Patricio VA Hospital. An era of valuable progress in the practice of medicine is passing away when the hospital closes its doors. Its achievements will linger in the memory of those who participated and profited from them.

A new 720-bed hospital will replace the present 200-bed hospital, and great heights in the practice of medicine are contemplated.

C. José Ferraioli, MD

** - The San Patricio Veterans Administration Hospital was officially named San Juan Veterans Administration Hospital in 1961.*

INVITACION A UN DIALOGO MEDICO EN ISABELA

"En general, puede afirmarse que no hay cuestiones agotadas, sino hombres agotados en las cuestiones".
Santiago Ramón y Cajal

Hemos incluído en el programa científico de la próxima Convención Semi Anual en Isabela sólo cuestiones de actualidad con importancia vital, propias de un diálogo entre hombres activos en búsqueda de ciencia y verdad. Ahora invitamos a los miembros de la Asociación Médica a reunirse en Isabela para participar vigorosamente en la consideración de los problemas médicos de Puerto Rico. Que no se diga que nuestra matrícula está agotada en las cuestiones.

Examinemos el programa. Comenzarán las sesiones científicas el cuatro de julio con los trabajos sobre encimas, immunología, timo, y tumores del intestino delgado por los doctores Cohen y Thompson, de Chicago, y Casanova y Leyva de Puerto Rico. El Dr. Simon hablará sobre "El Siquiatra Cautivo". Cerrará el día un panel sobre trasplantes renales, tema de mucha actualidad. Participarán los doctores Roberto Rodríguez, Héctor F. Rodríguez, Sergio López Lotti, Osvaldo Ramírez Muxó y Francisco E. Oliveras.

El cinco de julio también será un día clave. Se presentarán algunos de los logros y adelantos vistos en nuestro propio gallinero: resección radical de hígado para tumor, tratamiento de defectos interventriculares con obstrucción parcial de la arteria pulmonar, lavado bronquial, responsabilidad por negligencia médica y muchos más. Serán presentaciones cortas pero intensas. Seguirá el panel del día: **Salud y Contaminación Ambiental.** *Han aceptado participar hombres responsables hondamente preocupados por los problemas ambientales de Puerto Rico: Dr. E. Colón Yordán, Honorable Secretario de Salud, Dr. Angel Alberto Colón, Dr. Máximo Cerame Vivas y Dr. Nelson Biaggi.*

Recordemos que cualquier problema de salud oriundo en contaminación ambiental será responsabilidad nuestra como médicos de Puerto Rico. He aquí una oportunidad para dialogar con quienes forman la vanguardia; de preguntar, exponer puntos de vista, aclarar dudas, y participar como profesionales, ni vencidos, ni agotados por las cuestiones. Aquellos que no puedan asistir sí pueden enviar sus preguntas. Estas serán entregadas a los moderadores.

El programa social de la Convención refleja la prolífica hospitalidad de la Sección Norte y vecinos de Isabela. Habrá tiempo libre para gozar de las facilidades del hotel.

Por último, tendremos un reloj. Fiel a su trabajo de evitar presentaciones largas y latosas, nos ayudará a seguir el consejo de Don Quijote a su escudero Sancho:

"Si de esa manera cuentas tu cuento, Sancho, repitiendo dos veces lo que vas diciendo, no acabarás en dos días, dilo seguidamente, y cuéntalo como hombre de entendimiento, y si no, no digas nada."

Jorge O. Just Viera, MD
Presidente
Convención Semi Anual

NOTICIAS

Actividades

A continuación informamos las actividades reportadas durante el mes de mayo: "Mes de las Profesiones de Salud".

Mayo 1- Reunión Servicio Médico Emergencia Distrito Este y Facultad Médica Hospital Municipal de Bayamón. Hospital Municipal de Bayamón - 8:00 p. m.
Mayo 2- Reunión de Junta Editora del Boletín - AMPR - 5:00 p. m.
Mayo 3- Asamblea Anual Asociación Terapia Ocupacional - AMPR - 9:00 a. m.
Mayo 4- Actividad en honor de las madres auspiciada Comité Socio Cultural del Distrtio Este - Holiday Inn - 2:00 p. m.
Mayo 6- Reunión Consejo Científico - AMPR - 6:00 p.m.
Mayo 6- Reunión Sección Medicina Física y Rehabilitación - AMPR - 7:45 p. m.
Mayo 6- Reunión Comité Relaciones Públicas Distrito Este - AMPR - 8:00 p. m.
Mayo 6- Campeonato de Dominó - AMPR - 8:00 p. m.
Mayo 6- Reunión Comité Feria de la Salud - AMPR - 11:00 a. m.
Mayo 7- Reunión Sociedad Distrito Este - AMPR - 7:30 p.m.
Mayo 7- Reunión Sección E.N.T. - AMPR - 7:30 p. m.
Mayo 9- Actividad Socio-Cultural - Concierto de Guitarra por el Sr. Manuel Fernández Deza - AMPR - 8:00 p.m.
Mayo 13- Reunión Consejo Relaciones Públicas - AMPR - 8:00 p. m.
Mayo 13- Reunión Asistentes Médicos - AMPR - 8:00 p.m.
Mayo 13- Campeonato de Dominó - AMPR - 8:00 p. m.
Mayo 13- Curso Auscultación del Corazón - Dr. Scott Butterworth - Hosp. Presbiteriano - 7:00 p. m.
Mayo 14- Iniciación Estudiantes Cuarto Año - Escuela Medicina - AMPR - 8:00 p. m.
Mayo 14- Reunión Consejo Servicios Médicos - AMPR - 8:00 p. m.
Mayo 14- Curso Auscultación del Corazón - Dr. Scott Butterworth - Hosp. Presbiteriano - 2:00 p.m. y 7:00 p.m.
Mayo 15- Reunión Comité de Etica - Hosp. Presbiteriano - 5:30 p. m.
Mayo 16- Curso Auscultación del Corazón Dr. Scott Butterworth - Hospital de la Concepción - 7:00 p.m.
Mayo 16- Asociación Mujeres Médicas - Sesión Científica - Dr. Héctor Rodríguez, "Trasplante Renal" y Dr. José Nine Curt, "Rol de la Mujer Médica en Puerto Rico" - AMPR - 7:30 p. m.
Mayo 17- Curso Auscultación del Corazón Dr. Scott Butterworth - Hospital de la Concepción - 9:00 a.m. y 2:00 p. m.
Mayo 19- Conferencia ofrecida por el Colegio de Abogados - AMPR - 8:00 p. m.
Mayo 20- Reunión Consejo Educación Médica - AMPR - 8:00 p. m.
Mayo 20- Reunión Consejo de Política Pública - AMPR - 8:00 p. m.
Mayo 20- Campeonato de Dominó - AMPR - 8:00 p. m.
Mayo 21- Coctel ofrecido por la Asociación de Asistentes Médicos - AMPR - 8:00 p. m.
Mayo 22- Reunión Directiva y Comités de la Cooperativa de la AMPR - AMPR - 8:00 p. m.
Mayo 23- Concierto de Guitarra por el Lcdo. Federico Cordero - AMPR - 8:00 p. m.
Mayo 24- Reunión Junta de Directores de la Asociación Médica - AMPR - 2:00 p. m.
Mayo 25- Acto Cultural Asociación Médicos Independistas - AMPR - 2:00 p. m.
Mayo 26- Donación Sangre Cruz Roja Empleados Departamento Agricultura - AMPR - 7:30 a. m.
Mayo 27- Campeonato de Dominó - AMPR - 8:00 p. m.
Mayo 29- Reunión Consejo Salud Pública - AMPR - 8:00 p. m.
Mayo 29- Reunión Consejo Judicial y Administrativo - AMPR - 8:00 p. m.

FE DE ERRATA

61: 51, 1969 (Febrero)
Línea 9

Debe leer:

..... high prevalence of normal blood pressure readings and .....

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el número de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), e iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas medicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

Se alquila local segundo piso, para médicos - Más de 1,000 pies cuadrados - piso terrazo - tres cuartos - dos baños; luz, agua y parking incluídos. A varios minutos del Hospital del Maestro, Centro Médico y Auxilio Mutuo. Para más información, llamar al Dr. Cuevas, teléfonos 767-1001 o 764-2226.

Se alquila local para dispensario médico - Tiene tres oficinas - Teléfono - Ave. Comercial Lomas Verdes. Para más información llamar al teléfono 767-5095.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pila Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras Están semiequipadas. Sitio céntrico próximo a las calle principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas Apartado 20267, Río Piedras, P. R., Teléfono 766-7398

Public Enema No.1





Claim the rewards of sparing your patients the tubes and tribulations of unpleasant enemas.

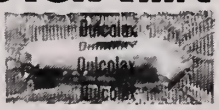
Compared to enemas, Dulcolax suppositories are a gentler and simpler way to empty the bowel. Gone are the tubing, the "accidents", and the bruised egos. Just one suppository, inserted against the bowel wall, usually brings about an evacuation within 15 minutes to an hour.

In the hospital, order Dulcolax for constipation or bowel cleansing. Your patients will often prefer it to embarrassing enemas. And you can be sure nurses will appreciate the saving in time and effort.

Dulcolax tablets taken at night usually result in a bowel movement the following morning. A combination of tablets at night and a suppository the next morning generally cleans the bowel thoroughly in preparation for surgery or special procedures. Keep in mind, however, that the drug is contraindicated in the acute surgical abdomen.

Dulcolax®...it's predictable

bisacodyl



nder license from Boehringer Ingelheim G m.b.H.

Geigy Pharmaceuticals, Division of Geigy Chemical Corporation, Ardsley, New York 10502

DU-6118



Nose clear as a whistle

(THANKS TO DIMETAPP®)

Dimetapp Extentabs® does an outstanding job of helping to clear up the stuffiness, drip and congestion of colds and upper respiratory allergies and infections. Each Extentab keeps working up to 12 hours. And for most patients drowsiness or overstimulation is unlikely. Try Dimetapp. It clearly works.

UP TO 12 HOURS CLEAR BREATHING ON ONE TABLET

Dimetapp Extentabs®

Dimetane® (brompheniramine maleate), 12 mg.; phenylephrine HCl, 15 mg.; phenylpropanolamine HCl, 15 mg.

FOR UPPER RESPIRATORY ALLERGIES AND INFECTIONS

Indications: Dimetapp is indicated for symptomatic relief of the allergic manifestations of respiratory illnesses, such as the common cold and bronchial asthma, seasonal allergies, sinusitis, rhinitis, conjunctivitis, and otitis.
Contraindications: Hypersensitivity to antihistamines. Not recommended for use during pregnancy.
Precautions: Until patient's response has been determined, he should be cautioned against engaging in operations requiring alertness. Administer with care to patients with cardiac or peripheral vascular diseases or hypertension.
Side Effects: Hypersensitivity reactions including skin rashes, urticaria, hypotension and thrombocytopenia, have been reported on rare occasions. Drowsiness, lassitude, nausea, giddiness, dryness of the mouth, mydriasis, increased irritability or excitement may be encountered.
Dosage: 1 Extentab morning and evening.
Supplied: Bottles of 100 and 500.

A.H. ROBINS COMPANY
RICHMOND, VA. 23220

A·H·ROBINS

Mild ulcerative colitis may be triggered here...



In mild ulcerative colitis, a number of factors can precipitate an attack: for instance, dietary indiscretion, such as eating raw foods, or emotional overreaction, such as that aroused by financial difficulties. No matter what causes the patient's sensitive colon to "act up," he soon suffers from acute discomfort... and often, from anxiety and apprehension as well. Such patients frequently respond well to adjunctive dual-action Librax® therapy.

Librax combines, in a single convenient capsule, the well-known antianxiety effect of Librium® (chlordiazepoxide HCl) and the dependable anticholinergic /antispasmodic effect of Quarzan® (clidinium Br). Therefore, as Librax helps to relieve the patient's excessive anxiety and at the same time, helps to control hypersecretion and hypermotility, thus relieving spasm and abdominal discomfort.

With Librax, the dosage schedule is simple: 1 or 2 capsules, t.i.d. or q.i.d., will in most cases bring the patient significant relief of both the emotional and physical elements that contribute to his psychovisceral disorder.

Before prescribing, please consult complete product information, a summary of which follows.

INDICATIONS: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

CONTRAINDICATIONS: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide.

combined effects with alcohol and other CI depressants. As with all CNS-acting drugs, ca tion patients against hazardous occupations quiring complete mental alertness (*e.g.*, operati machinery, driving). Though physical and p chological dependence have rarely been report on recommended doses, use caution in a ministering Librium (chlordiazepoxide hyd chloride) to known addiction-prone individu or those who might increase dosage; withdraw symptoms (including convulsions), followi discontinuation of the drug and similar to tho seen with barbiturates, have been reported. U of any drug in pregnancy, lactation, or in wom of childbearing age requires that its potent benefits be weighed against its possible hazar As with all anticholinergic drugs, an inhibiti effect on lactation may occur.

PRECAUTIONS: In elderly and debilitat limit dosage to smallest effective amount to p clude development of ataxia, oversedation confusion (not more than two capsules per

or here.



). Though generally not recommended, if
bination therapy with other psychotropics
ns indicated, carefully consider individual
rmacologic effects, particularly in use of po-
iating drugs such as MAO inhibitors and
nothiazines. Observe usual precautions in
sence of impaired renal or hepatic function.
adoxical reactions (*e.g.*, excitement, stimula-
and acute rage) have been reported in psy-
tric patients. Employ usual precautions in
tment of anxiety states with evidence of im-
ding depression; suicidal tendencies may be
ent and protective measures necessary. Vari-
effects on blood coagulation have been
orted very rarely in patients receiving the
g and oral anticoagulants; causal relation-
has not been established clinically.

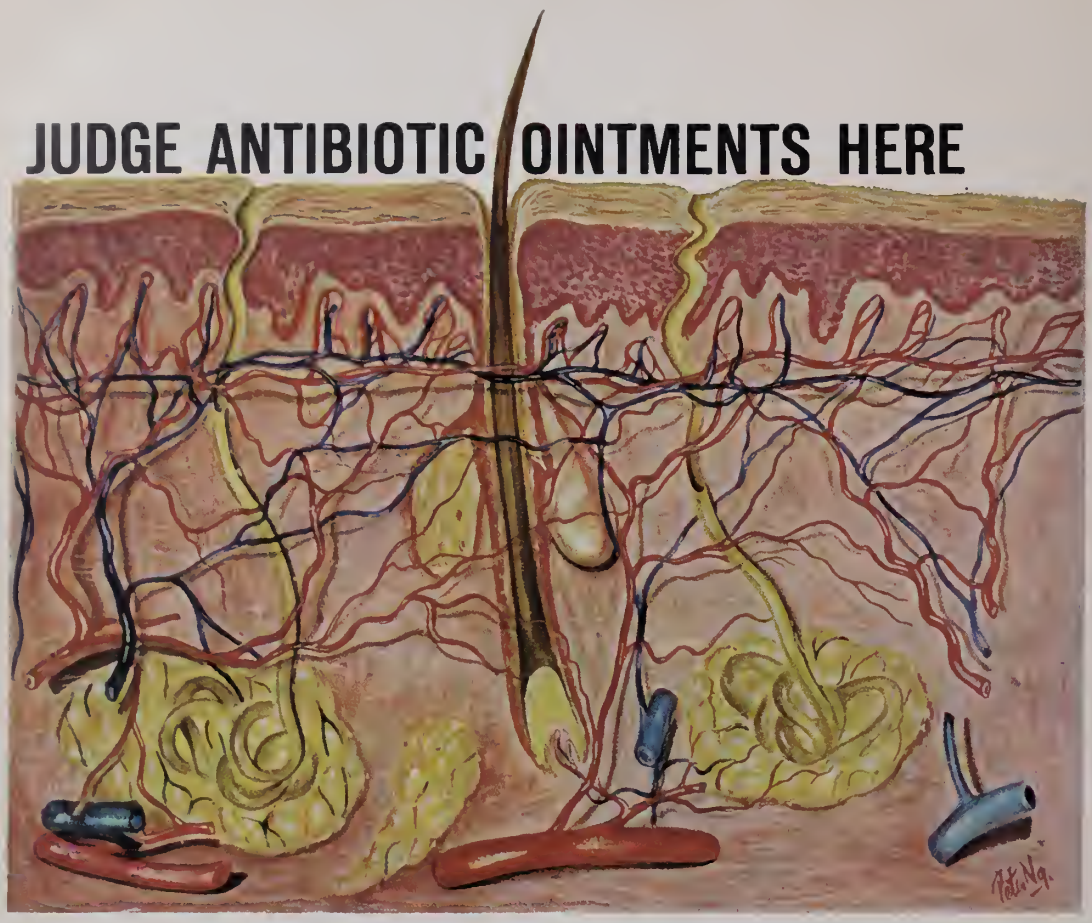
DVERSE REACTIONS: No side effects or
ifestations not seen with either compound
e have been reported with Librax. When
rdiazepoxide hydrochloride is used alone,
ataxia and confusion may occur,
are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver-function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low

two good reasons for prescribing LIBRAX®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

ROCHE
LABORATORIES
Division of Hoffmann-La Roche Inc.

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®
brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

Otro nuevo descubrimiento de Lakeside



cuando la depresión abruma

NORPRAMIN

(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extrapiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

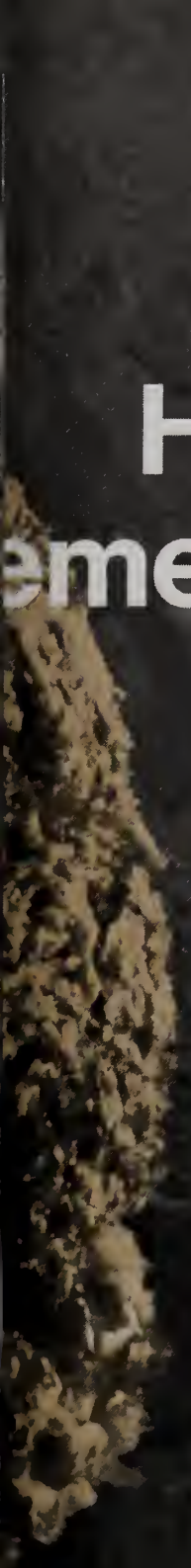
LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.



Help cardiac patients emerge from the burden of fluid retention



When you start with Lasix you can expect:

Prompt, encouraging response—Diuresis with Lasix Tablets begins within one hour, peaks in the first or second hour. By starting with Lasix you can be confident of quickly perceptible relief for most patients.

Short span of action—Diuresis with Lasix Tablets is complete in six to eight hours. By starting with Lasix you can evaluate initial response more quickly, make any necessary dosage adjustments sooner than with longer-acting diuretics.

Generally assured efficacy from onset of therapy—Lasix acts throughout the nephron to provide enhanced diuretic efficacy. Starting with Lasix usually ensures relief of edema.

When you stay with Lasix you can expect:

Continuing efficacy—In clinical studies with congestive heart failure patients, Lasix has been proved effective for periods ranging from 3 to 23 months.[1-4]

Predictable long-term control—Lasix generally produces diuresis (as measured by weight loss) in relation to the dosage given.[5] With this predictable action you can 'tailor' dosage to the patient's needs, often on an intermittent dosage schedule.

Patient cooperation—Short span of action means dosage schedules can be timed to suit your patient's requirements for work and sleep. By staying with Lasix you can count on more effective, trouble-free management through continuing patient cooperation.

Lasix®
furosemide

Now—most widely used diuretic in cardiac edema

HOECHST

Please see prescribing information which follows...

In most mild-to-moderate cardiac edemas...the response you want by selecting the dosage your patients need

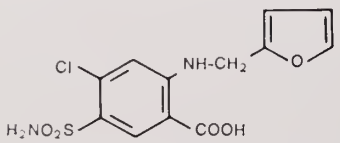
Lasix®

brand of furosemide
Tablets and Injection

WARNING—Lasix (furosemide) is a new, potent diuretic which, if given in excessive amounts, can lead to a profound diuresis with water and electrolyte depletion. Therefore, careful medical supervision is required, and dose and dose schedule have to be adjusted to the individual patient's needs. (See under "Dosage and Administration.")

Lasix (furosemide) is a new diuretic, chemically distinct from the organomercurials, thiazides, and other heterocyclic compounds. It is characterized by: a high degree of efficacy; a rapid onset of action; a comparatively short duration of action; a ratio of minimum to maximum effective dose higher than 1:10; the fact that it acts not only at the proximal and distal tubules, but also at the ascending limb of Henle's loop.

Chemistry—Lasix (furosemide) is an anthranilic acid derivative. Chemically, it is 4-chloro-N-furfuryl-5-sulfamoylanthranilic acid. The structural formula is as follows:



Pharmacology—Investigations into the mode of action of Lasix (furosemide) have utilized the most recent methods in nephrology; micro-puncture studies in rats, stop-flow experiments in dogs, and various clearance studies in both humans and experimental animals. It has been demonstrated that Lasix (furosemide) inhibits primarily the reabsorption of sodium not only in the proximal and distal tubules, but also in the loop of Henle. The high degree of efficacy is largely due to this unique site of action. The action on the distal tubule is independent of any inhibitory effect on carbonic anhydrase and aldosterone. The onset of diuresis following oral administration is within one hour, the peak effect occurs within the first or second hour, and the duration of diuretic effect is 6 to 8 hours. The diuresis following an intravenous injection commences within five minutes (somewhat later after intramuscular injection), reaches its peak within the first half hour and lasts for two hours. Because Lasix (furosemide) inhibits the reabsorption of a very high percentage of the filtered sodium, it is often effective in patients with markedly reduced glomerular filtration rates, in whom other diuretics usually fail. Lasix (furosemide) has been used concurrently with aldosterone antagonists to good advantage. Lasix (furosemide) appears to have a blood pressure lowering effect similar to that of the thiazides.

Indications—Lasix (furosemide) is indicated for the treatment of the edema associated with congestive heart failure, cirrhosis of the liver, and renal disease, including the nephrotic syndrome. Lasix (furosemide) is particularly useful when an agent with greater diuretic potential than that of those commonly employed is desired. If the gastrointestinal absorption is impaired or oral medication is not practicable for any reason, Lasix (furosemide) is indicated by the intramuscular or intravenous route. The intravenous administration of Lasix (furosemide) is indicated when a rapid onset of the diuresis is desired, e.g., acute pulmonary edema. **Parenteral administration should be reserved for patients where oral medication of Lasix (furosemide) is not practical.** Until further clinical experience is accumulated, Lasix (furosemide) is not recommended for use in hypertension.

Contraindications—Lasix (furosemide) is contraindicated in anuria. If increasing azotemia and oliguria occur during treatment of severe progressive renal disease, the drug should be discontinued. In hepatic coma and in states of electrolyte depletion, therapy should not be instituted until the basic condition is improved or corrected. Lasix (furosemide) is contraindicated in patients with a history of hypersensitivity to this compound. Until further experience in children is accumulated, therapy with Lasix (furosemide) should be avoided.

Supplementary Warnings—Excessive diuresis may result in dehydration and reduction in blood volume, with circulatory collapse and the possibility of vascular thrombosis and embolism, particularly in elderly patients. Excessive loss of potassium in patients receiving digitalis glycosides may precipitate digitalis toxicity. Care should be exercised in patients receiving potassium depleting steroids. Frequent serum electrolyte, CO_2 and BUN determinations should be performed during the first few months of therapy and periodically thereafter, and abnormalities corrected or the drug temporarily withdrawn. **In patients with hepatic cirrhosis and ascites, initiation of therapy with Lasix (furosemide) is best carried out in the hospital.** Sudden alterations of fluid and electrolyte balance in patients with cirrhosis may precipitate hepatic coma; therefore, strict observation is necessary during the period of diuresis. Supplemental potassium chloride and, if required, an aldosterone antagonist are helpful in preventing hypokalemia and metabolic alkalosis. As with any new drug, patients should be observed regularly for the possible occurrence of blood dyscrasias, liver damage, or other idiosyncratic reactions. In those instances where potassium supplementation is required, coated potassium tablets should be used only when adequate dietary supplementation is not practical. There have been several reports, published and unpublished, concerning nonspecific small bowel lesions consisting of stenosis, with or without ulceration, associated with the administration of enteric-coated thiazides with potassium salts. These lesions may occur with enteric-coated potassium tablets alone or when they are used with nonenteric-coated thiazides, or certain other oral diuretics. These small bowel lesions have caused obstruction, hemorrhage, and perforation. Surgery was frequently required, and deaths have occurred. Based on a large survey of physicians and hospitals, both American and foreign, the incidence of these lesions is low, and a causal relationship in man has not been definitely established. Available information tends to implicate enteric-coated potassium salts although lesions of this type also occur spontaneously. Therefore, coated potassium-containing formulations should be administered only when indicated, and should be discontinued immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occurs. Lasix (furosemide) is not available in a combined product with any form of potassium.

Usage in Pregnancy—The use of any drug in pregnancy, lactation, or in the child-bearing age group requires that the potential benefits of the drug be weighed against possible hazards to the mother and child. Reproduction studies with Lasix (furosemide) in mice, rabbits, and rats have produced no evidence of toxicity specific to the fetus. However, Lasix (furosemide) has had only limited use in pregnant patients.

Precautions—As with any potent diuretic, electrolyte depletion may occur during therapy with Lasix (furosemide), especially in patients receiving higher doses and a restricted salt intake. Electrolyte depletion may manifest itself by weakness, dizziness, lethargy, leg cramps, anorexia, vomiting, and/or mental confusion. In edematous hypertensive patients being treated with antihypertensive agents, care should be taken to reduce the dose of these drugs when Lasix (furosemide) is administered, since Lasix (furosemide) potentiates the hypotensive effect of antihypertensive medications. Asymptomatic hyperuricemia can occur and gout may rarely be precipitated. Reversible elevations of BUN may be seen. These have been observed in association with dehydration, which should be avoided, particularly in patients with renal insufficiency. Although no pronounced effect on carbohydrate metabolism has been demonstrated, periodic checks on urine and blood glucose should be made in diabetic patients receiving Lasix (furosemide). Occasional increases in blood glucose have occurred during therapy with Lasix (furosemide). Sulfonamide diuretics have been reported to decrease arterial responsiveness to pressor amines and to enhance the effect of tubocurarine. Great caution should be exercised in administering curare or its derivatives to patients undergoing therapy with Lasix (furosemide), and it is advisable to discontinue oral Lasix (furosemide) for one week and parenteral Lasix (furosemide) two days prior to any elective surgery.

Adverse Reactions—Infrequent skin rash, pruritus, paresthesia, blurring of vision, postural hypotension, nausea, vomiting, or diarrhea may occur. Thrombocytopenic purpura has been reported. There have been a few instances of leukopenia and one report of acute pancreatitis although relationship to the drug has not been established. Lasix (furosemide) induced diuresis has occasionally been accompanied by weakness, fatigue, lightheadedness or dizziness, muscle cramps, thirst, flushing, and urinary frequency. Transient pain after intramuscular injection has been reported at the injection site.

Dosage and Administration

Oral Administration: The usual dose of Lasix (furosemide) is 1 to 2 tablets (40 to 80 mg.) given as a single dose, preferably in the morning. Ordinarily, a prompt diuresis ensues. Depending on the patient's response, a second dose can be administered 6 to 8 hours later. This dosage and dosage schedule can then be maintained or even reduced. If the diuretic response with a single dose of 1 to 2 tablets (40 to 80 mg.) is not satisfactory, e.g., in a patient with congestive heart failure refractory to maximal doses of thiazides, the following schedule should be used: Increase this dose by increments of 1 tablet (40 mg.) not sooner than 6 to 8 hours after the previous dose until the desired diuretic effect has been obtained. This individually determined single dose should then be given once or twice daily, e.g., at 8:00 a.m. and 2:00 p.m. Based on completed studies, a maximum daily oral dose of 200 mg. should not be exceeded. Higher doses are currently under investigation. The mobilization of edema may be most efficiently and safely accomplished by utilizing an intermittent dosage schedule in which the diuretic is given for 2 to 4 consecutive days each week. With doses exceeding 80 mg./day and given for prolonged periods, careful clinical and laboratory observations are particularly advisable. Until further experience in children is accumulated. Lasix (furosemide) should not be given to children.

Parenteral Administration: The usual dose of Lasix (furosemide) is 1 to 2 ampules (20 to 40 mg.) given as a single dose, injected intramuscularly or intravenously. The intravenous injection should be given slowly (1 to 2 minutes). Ordinarily, a prompt diuresis ensues. Depending on the patient's response a second dose can be administered two hours after the first dose or later. If the diuretic response with a single dose of 1 to 2 ampules (20 to 40 mg.) is not satisfactory, e.g., in a patient refractory to maximal doses of thiazides, the following schedule should be used under careful medical supervision: Increase this dose by increments of 1 ampule (20 mg.) not sooner than two hours after the previous dose until the desired diuretic effect has been obtained. This individually determined single dose should then be given once or twice daily. Parenteral administration should be reserved for patients where oral medication is not practical. The parenteral therapy with Lasix (furosemide) can be replaced by treatment with Lasix (furosemide) tablets as soon as this is practical for continued mobilization of edema. **Treatment of Acute Pulmonary Edema**—Since the diuresis evoked by Lasix (furosemide) given intravenously commences within five minutes and leads to an intensive diuresis, the treatment of patients with acute pulmonary edema with Lasix (furosemide) intravenously has proven particularly valuable. The following dosage schedule is recommended: 2 ampules (40 mg.) of Lasix (furosemide) are to be slowly injected intravenously immediately. This dose should be followed by another 2 ampules (40 mg.) one to one and one-half hours later, if that is indicated by the patient's condition. If deemed necessary, additional therapy, e.g., digitalis, oxyoen, can be administered concomitantly. Until further experience in children is accumulated, Lasix (furosemide) should not be given to children.

How Supplied—Lasix Tablets are supplied as white, monogrammed, scored tablets of 40 mg. In amber bottles of 100 (FSN 6505-062-3336) and 500. **Lasix Injection** is supplied as a sterile solution in 2 cc. amber ampules each containing 20 mg.

References: (1) Keyes, M. H., and Belle, M. S.: J. Florida M. A. 55:524, 1968. (2) King, J. C.: M. Times 95:772, 1967. (3) Peltola, P.: Acta med. scandinav. 177:777, 1965. (4) Soffe, A. M.: Pennsylvania Med. 70:47, 1967. (5) Hutcheon, D. E.; Mehta, D., and Romano, A.: Arch. Int. Med. 115:542, 1965.

180R269

HOECHST
PHARMACEUTICAL CO.
Cincinnati, Ohio 45229



para esa tos molesta recomiende el nuevo jarabe, sin narcóticos

Cheracol D

dominio efectivo de la tos, sin codeína

Cheracol D con dextrometorfano:

- acción antitusiva igual que con codeína, pero sin efectos secundarios narcóticos indeseables
- afloja las secreciones bronquiales
- refresca y suaviza la garganta
- tiene un agradable sabor a cerezas que lo hace muy popular entre los niños
- puede ser administrado a niños menores de dos años, bajo la vigilancia del médico

Cada onza fluida contiene:

Bromhidrato de dextrometorfano	9/10 gr. (60 mg.)
Cloroformo*	2 grs.
Guayacolato de Glicerilo	1⅖ grs.
Cloruro de Amonio	8 grs.
Tartrato de Antimonio y Potasio	1/12 gr.
Alcohol	3%

con corteza de pino blanco y de cerezo silvestre
*Cierta pérdida de cloroformo es inevitable.

Presentación: en frascos de 2 y 4 onzas.

Upjohn

681 REGISTRADO POR LA OFICINA DE PATENTES DE E.U.A. CHERACOL D PR 2870 E APRIL 1966
"COPYRIGHT 1966 BY THE UPJOHN COMPANY SE RESERVAN TODOS LOS DERECHOS"

UPJOHN INTER-AMERICAN CORPORATION/CAPARRA/PUERTO NUEVO

Symbols in a life of psychic tension

B.A.
cum laude

V.P.
at thirty-two

ECG
and complete examination normal
(persistent palpitations)



Valium®
(diazepam)

for reliable relief of psychic tension and associated somatic and depressive symptoms (including tension-induced insomnia)... usually well tolerated... 2-mg, 5-mg or 10-mg tablets *t.i.d.* and *h.s.*

Before prescribing, please consult complete product information, a summary of which follows:
Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).
Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.
Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.
Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.
Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

DISPLAY SHELVES



BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

WHIPPLE'S DISEASE: 142
Hematologic and Metabolic Aspects
Félix E. Tristani, MD, Julio V. Rivera, MD, FACP and Francisco Jaume, MD

OBESITY IN PUERTO RICAN CHILDREN AND ADULTS 153
N. A. Fernández López, MD, José C. Burgos, MD and Conrado F. Asenjo, PhD

OBSERVATIONS ON INVESTIGATIONS PRIOR TO SCHISTOSOMIASIS CONTROL .158
Peter Jordan, MD

EDITORIAL 161
Protective Factors from Atherosclerosis in Puerto Rican Veterans?

CARTAS 163

ACTUALIDADES MEDICAS 166

NOTICIAS 169

VOL. 61 MAYO, 1969 NUM. 5

Why DBI-TD (phenformin HCl) is the only significant advance in oral diabetes therapy since sulfonylureas



□ glucose ○ insulin

THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON

28 JUL 1969

1 Only DBI-TD does more than just lower blood sugar–it directs sugar primarily to where it is most needed... in muscle.

In the maturity-onset diabetic, blood sugar is elevated, but apparently not enough glucose enters muscle. Unlike other agents, DBI-TD increases glucose utilization primarily in skeletal muscle where sugar is needed.

2 Only DBI-TD actually promotes weight loss in the maturity-onset diabetic who is overweight.

All oral drugs *except* DBI-TD increase insulin release, which suppresses lipolysis and can accelerate lipogenesis. Thus DBI-TD, by avoiding insulin oversecretion, appears to ease—rather than aggravate—the weight problem in patients unresponsive to diet alone.

3 Only DBI-TD, among oral agents, helps counterbalance the inefficient action of the diabetic's own insulin.

There is increasing evidence that many overweight maturity-onset diabetics have higher than normal blood insulin levels, but this insulin is not efficient in promoting muscle glucose uptake. Unlike all other oral agents, DBI-TD helps control diabetes by selectively moving sugar into muscle without further increasing insulin levels.

4 Only DBI-TD, because of its unique action, reduces the risk of secondary failure and hypoglycemic reaction.

DBI-TD is the only agent that lowers blood sugar without stimulating the release of insulin from the pancreas. Secondary failures are infrequent with DBI-TD, and there is relative freedom from hypoglycemic reaction when DBI-TD is used alone.

a more physiological approach to begin with

DBI®-TD

(phenformin HCl)

timed-disintegration capsules 50 mg.

Dosage: 1 to 3 capsules daily. **Side Effects:** Gastrointestinal, occurring more often at higher dosage levels, abate promptly upon dosage reduction or temporary withdrawal. **Adverse Reaction:** Urticaria. **Precautions:** Occasionally an insulin-dependent patient will show "starvation" ketosis (acetonuria without hyperglycemia) which must be differentiated from "insulin lack" ketosis which is accompanied by acidosis, and treated accordingly. Lactic acidosis has been reported in nondiabetics and diabetics treated with insulin, with diet, and with DBI. Question has arisen regarding possible contribution of DBI to lactic acidosis in patients with renal impairment and azotemia and also those with severe hypotension secondary to myocardial or bowel infarction. Periodic B.U.N. determination should be made when DBI is administered in the presence of chronic renal disease. DBI should not be used when there is significant azotemia. Any cardiovascular lesion that could result in severe or sustained hypotension, which may itself lead to development of lactic acidosis, should be considered cause for immediate discontinuation of DBI at least until normal blood pressure has been restored and is maintained without vasopressors. Should lactic acidosis occur from any cause, vigorous attempts should be made to correct circulatory collapse, tissue hypoxia, and pH. **Contraindications:** Severe hepatic disease, renal disease with uremia, cardiovascular collapse. Not recommended without insulin in acute complications of diabetes (metabolic acidosis, coma, severe infections, gangrene, surgery). ***Pregnancy Warning:*** *During pregnancy, until safety is proved, use of DBI, like other oral hypoglycemic drugs, is to be avoided.* **Also Available:** DBI tablets 25 mg. *Consult product brochure.*

USV

USV PHARMACEUTICAL CORP., New York, N.Y. 10017
Producers of ARLIDIN® (nylidrin HCl)

if he exercises



THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON
1969

if he stops smoking if he takes Arlidin® (nylidrin HCl) the improvement can be significant!

in peripheral vascular disease: **EXERCISE** "Exercise is the specific physiologic stimulus for producing vasodilation in skeletal muscle."[1] **SMOKING** "The first and most important consideration of treatment is firm insistence that the patient stop smoking immediately and permanently. The reason for this is the powerful vasoconstricting action of smoking which is responsible for diminishing the peripheral circulation to a great degree."[2] **ARLIDIN** The overall physiological effect of a therapeutic agent should be similar to exercise—that is, both to increase cardiac output and to produce peripheral vasodilation.[3] "The ideal agent should be administered in the same way that we prescribe exercise—that is, three or four times a day for many years rather than for several weeks. The therapeutic goal is to increase blood flow through the capillary beds by way of a patent and constantly expanding collateral blood supply. At this time, I am aware of only one agent which fulfills the requirements as outlined above, namely nylidrin (Arlidin)."[3]

Contraindications: Acute myocardial infarction. (Following myocardial infarction, the initiation or reestablishment of this therapy should be undertaken in the same way as physical exercise. After a reasonable healing period, gradual upward adjustment of dosage to therapeutic levels may be attempted.) **Precautions:** Use with caution in the presence of a recent myocardial lesion, paroxysmal tachycardia, severe angina pectoris and thyrotoxicosis. **Adverse Reaction:** Occasional palpitation. **Dosage:** ½ to 1 tablet (3 to 6 mg.) three or four times a day is the usual effective dosage; increased, if necessary, to 2 tablets three or four times a day. Parenterally, 0.5 cc. by subcutaneous or intramuscular injection; increased gradually to 1 cc. one or more times daily, as needed. **Available:** Tablets: 6 mg. scored, bottles of 50, 100, and 500. Parenteral: 5 mg. per cc., 1 cc. ampuls (6 per box); 10 cc. multiple-dose vials (1 per box). **References:** 1. deCrinis, K., Redisch, W. and Steele, J.M.: Proc. Soc. Exper. Biol. Med. *102*:29, 1959. 2. Samuels, S.S.: Med. Times *88*:332, 1960. 3. Karpman, H.L.: Canad. Med. Ass. J. *94*:457, 1966.

arlidin®
(nylidrin HCl)

USV

USV PHARMACEUTICAL CORPORATION
New York, N.Y. 10017

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistémicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:
Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:
El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:
Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.

Public Enema No. 1





Claim the rewards of sparing your patients the tubes and tribulations of unpleasant enemas.

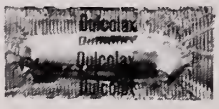
Compared to enemas, Dulcolax suppositories are a gentler and simpler way to empty the bowel. Gone are the tubing, the "accidents", and the bruised egos. Just one suppository, inserted against the bowel wall, usually brings about an evacuation within 15 minutes to an hour.

In the hospital, order Dulcolax for constipation or bowel cleansing. Your patients will often prefer it to embarrassing enemas. And you can be sure nurses will appreciate the saving in time and effort.

Dulcolax tablets taken at night usually result in a bowel movement the following morning. A combination of tablets at night and a suppository the next morning generally cleans the bowel thoroughly in preparation for surgery or special procedures. Keep in mind, however, that the drug is contraindicated in the acute surgical abdomen.

Dulcolax®...it's predictable

bisacodyl



Under license from Boehringer Ingelheim G.m.b.H.

Geigy Pharmaceuticals, Division of Geigy Chemical Corporation, Ardsley, New York 10502

DU-6

Otro nuevo descubrimiento de Lakeside



cuando la depresión abruma

NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extrapiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.



Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®

WHIPPLE'S DISEASE:
Hematologic and Metabolic Aspects

Félix E. Tristani, MD
Julio V. Rivera, MD, FACP
Francisco Jaume, MD

Over sixty years have elapsed since Whipple (1) described an illness characterized by arthritis, steatorrhea, cough, hypotension, skin pigmentation, lymphadenopathy, abdominal masses and anemia. In 1949 Black-Schaffer (2) delineated its characteristic histologic findings which consisted of infiltration of the lamina propria of the small bowel by macrophages containing periodic acid-Schiff (PAS) positive particles. The subsequent finding of the characteristic PAS positive macrophages in almost every organ of the body by Sieracki (3) pointed to the diffuse tissue involvement in this illness.

Yardley and Hendrix (4) and Chears and Adsworth (5) in 1961 demonstrated by electron microscopy that the sickle-shaped PAS material seen under the light microscope represents bacteria or bacterial substances. Dobbins and Ruffin (6) have correlated the disturbance of absorptive functions to the findings on light and electron microscopy. The presence of bacteria in the epithelial cells, and in the lysosomes of the lymphatic endothelium and the masses of macrophages in the lamina propria are apparently functionally important. It is not known if these bacteria are the cause of Whipple's disease. It may be equally reasonable to assume than an underlying metabolic or immunological abnormality exists that allows these organisms to cross the mucosal surface of the small intestine (7, 8).

The anemia characteristic of intestinal lipodystrophy is hypochromic, of the iron deficiency type (9). It has been ascribed to blood loss by the gastrointestinal tract (10) although impaired absorption of iron (11) and hemolysis (12, 13) have also been suggested. This question has not been settled by previous studies.

Other features of the disease, such as its predominance in white males, the associated psychiatric disorders in patients and their relatives and the concurrence of diabetes mellitus remain unexplained.

The untreated disease carries a high mortality rate. Although the results of treatment have been variable in the past, recent reports by Ruffin and others (14 - 17) show that antibiotics are beneficial.

The disease has been found mostly in Europe and the Western Hemisphere. We are presenting here the first case reported from Puerto Rico. Metabolic and hematologic studies have been carried out in an attempt to clarify certain aspects of this illness. A prolonged remission following the administration of tetracycline has been observed.

Materials and Methods

The various methods and procedures employed in the study of this patient's anemia, blood chemistries and tests for intestinal absorption are listed in Table I.

After preliminary studies were performed, the patient was placed on a standard diet which contained between 90 and 100 grams of fat daily. Duplicate samples of the diet actually consumed were saved. All stools were to be collected. Both diet and stools were analyzed for total fat by the method of Van de Kamer *et al* (25). Medium chain triglycerides* obtained from the fractionation of coconut oil were the basis of the MCT diet which was subsequently given. This diet, which was given for 17 days, also contained 90-100 grams of fat daily. We intended to compare the effect of these two diets on the steatorrhea and on the levels of serum lipids. Serum cholesterol, total lipids and beta lipoproteins were determined weekly according to standard procedures (26). The patient was weighed daily before breakfast.

Case Report

A 19-year old white male was admitted on February 26, 1964, complaining of chest pain of three months dura-

From the Medical and Radioisotope Services and the General Medical Research Laboratory, Veterans Administration Hospital; and the Department of Medicine, University of Puerto Rico School of Medicine, San Juan, Puerto Rico.

Presented at the 62nd Annual Meeting of the Puerto Rico Medical Association held November 10-11, 1964, San Juan, Puerto Rico.

*Supplied by Drew Chemical Corp., 416 Division St., Boonton, New Jersey.

TABLE I: LABORATORY DATA

Procedure	March 1964	July 1964	1969
Erythrocyte count (mill./cu.mm)	3.04	4.38	-
Hemoglobin (g/100 ml.)	7.9	14.9	15.0
Leukocyte count (per cu. mm.)	4800	6400	10070
Erythrocyte sedimentation rate (mm/hr)	54	15	-
C-reactive protein	4+	2+	-
Apparent erythrocyte survival (18) ^{51}Cr (days)	17	25	-
Fecal blood loss (18) ^{51}Cr ml/day	33	0.5	-
Iron (^{59}Fe) absorption (19)	50 percent		
Serum			
iron (20) (µg/100 ml)	33.3	192	91
unsat. iron binding capacity (20) percent	168		240
potassium (mEq/L)	3.6	5.4	4.6
calcium (mg/100 ml)	9.8	9.5	10
phosphorous (mg/100 ml)	4.2	4.2	3.2
albumin (g/100 ml)	2.8	4.6	4.0
globulin	3.2	-	2.8
lipids, total	490	763	
cholesterol (mg/100 ml)	124	235	200
β-lipoproteins (mm of ppte.)	2.0	2.6	2.5
Blood glucose (mg/100 ml)	135	203	128
Alkaline phosphatase (Shinowara-Jones-Reinhart units)	33.8	8.5	4.2
Glutamic oxalacetic transaminase	20		-
Pyruvic oxalacetic transaminase	12		-
Bromsulphthalein retention after 45 minutes	2 percent		
Prothrombin time (sec.)	12.4		-
Serum bilirubin (mg/100 ml)	0.55		-
d-xylose (21) (g/5 hr. urine)	0.7	1.5	4.9
Triolein absorption (^{131}I) labelled (22) blood peak (percent adm. dose /liter)	0.3	1.9	1.5
Postprandial serum turbidity increment (23)	0.015	0.556	0.611
B_{12} absorption (24) (percent urinary excretion)	2 percent	27 percent	0.75 *
Fecal fat (g/24 hr)	12.4	2.41	7.0
Immunoglobulins **			
IgG (mg/100 ml)			1850
IgA			385
IgM			53

** - Percent AD/L blood 8 hr after oral dose.*

*** - Radial diffusion in immunoplates.*



Fig. 1: *(a) The patient after surgery but prior to treatment with tetracycline; (b) in February 1969, 5 years after treatment.*

tion. The pain was a constant oppresive non-radiating retrosternal sensation, which was aggravated by movement of the trunk, respiration and cough. Dyspnea on exertion, paroxysmal nocturnal dyspnea and slight peripheral edema had also been present. There was no orthopnea. The patient also complained of anorexia, diarrhea and a twenty pound weight loss. Two months before admission he developed cough productive of yellow sputum and nocturnal fever. He denied melena, hematemesis and abdominal pain.

During his Army service in 1941 a diagnosis of schizophrenic reaction, undifferentiated type, was made. In 1953 diabetes mellitus was discovered. He was hospitalized in 1957 because of mild arthralgias of three years duration which were at times accompanied by signs of inflammation. At that time the blood pressure, hemoglobin, serum proteins and erythrocyte sedimentation rate were normal. A diagnosis of rheumatoid arthritis was entertained. He developed another episode of polyarthritis of small and large joints in 1963.

The patient's mother and aunt had diabetes mellitus. The patient's two sons have mental disease and one of them has been suspected of having liver disease. Two daughters are well.

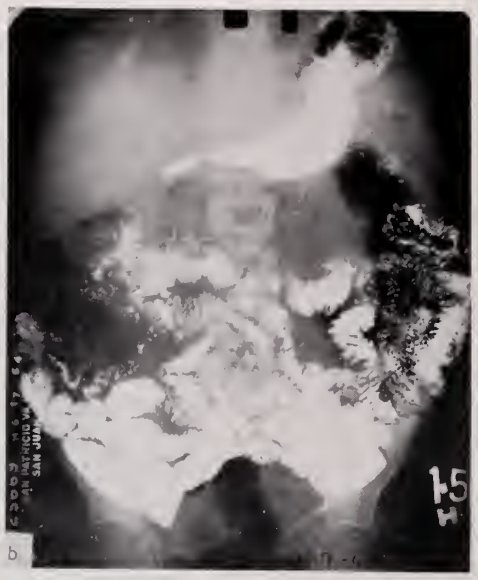
Physical examination showed an undernourished white male

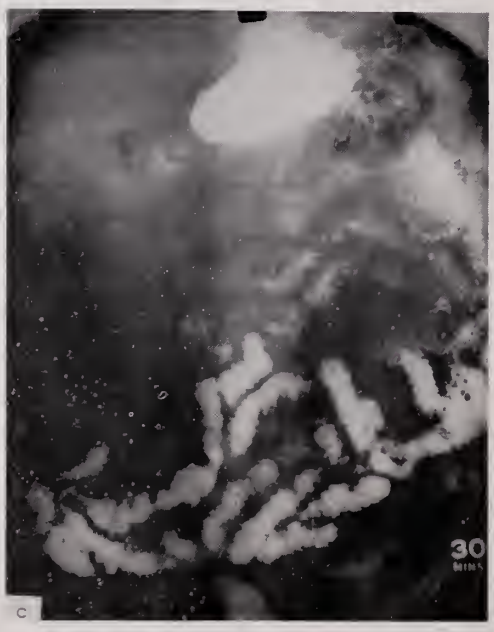
who was in slight respiratory distress (Fig. 1a). A blood pressure of 80/60 mm Hg., pulse of 116 beats per minute and temperature of 99°F were recorded. He weighed 115 lbs. and his height was 61 inches. There was diffuse pigmentation of the buccal mucosa and the exposed areas of the skin sparing the palms, soles and scars. Mild neck vein distention was present. On auscultation of the heart a tic-tac rhythm was heard. Crepitant rales were present at the lung bases. The liver was not enlarged and a hepatojugular reflux was absent. The abdomen was distended and there was generalized tenderness. On palpation a donghy sensation was apparent. Clubbing of the fingers was noted. There was slight edema of the ankles. There was no bone tenderness and no evidence of joint involvement.

Laboratory examinations (Table I) showed a hypochromic anemia, hypoproteinemia and evidence of intestinal malabsorption. Considerable gastrointestinal blood loss was demonstrated by the ^{51}Cr method. The alkaline phosphatase was very high. The electrocardiogram showed non-specific ST-T changes. An electroencephalogram was slightly abnormal showing moderate to low voltage activity.

Roentgenograms of the chest showed contraction of the right upper lobe and minimal pleural reaction over both costophrenic angles. X-ray studies of the bones and gallbladder were normal. A small bowel series showed widening of the lumen with thickening of the folds of the jejunal and duodenal segments. There was also segmentation and marked degree of hypersecretion, particularly in the ileal segments (Fig. 2a). This pattern suggested intestinal tuberculosis, lymphoma, sprue or Whipple's disease. The latter was favored by the radiologist.

Sternal bone marrow smears showed a slight erythroid hyperplasia and an increased number of plasma cells. There





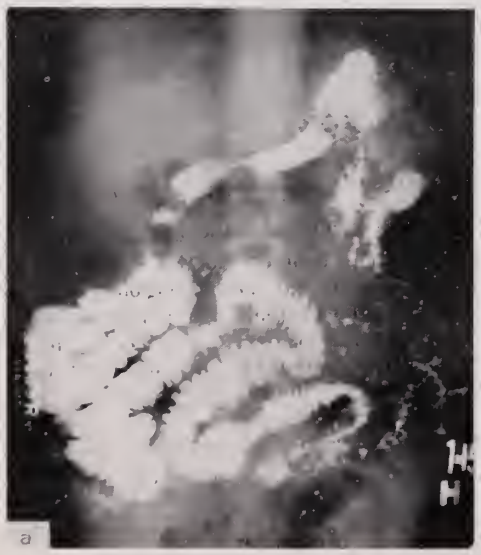


Fig. 2: *(a) Small bowel series radiograph on the sixteenth hospital day which shows widening of the lumen with thickened folds of visualized jejuno-ileal segments; (b) Radiograph showing marked improvement after two months of therapy; (c) Study on February 1969 which is considered normal.*

was normal maturation of the erythrocytic series. No iron granules were seen in smears stained with ferrocyanide and neutral red. Bone marrow culture grew gram-positive club-shaped bacilli which were non-motile, non-spore forming and had monochromatic granules. It was further identified as *Corynebacterium anaerobium.*

The initial hospital course was characterized by daily fever ranging from 99° to 101°F, abdominal distention, tenderness and occasional episodes of precordial pain. The diarrhea subsided spontaneously. Needle biopsy of the liver showed occasional focal infiltration with round cells which did not stain with periodic acid-Schiff reagent.

Abdominal paracentesis was attempted because of the possibility of ascites. Only a few drops of a slightly turbid fluid were obtained which showed clusters of mesothelial cells on smears.

Three blood transfusions were administered and a diagnostic laparatomy was performed on the 15th. hospital day. A small amount of cloudy fluid was found in the peritoneal cavity. The small bowel wall was thickened and edematous with fine granulations over the serosal surface. There were numerous large and small lymph nodes of soft consistency in the retroperitoneal and mesenteric areas. The liver had subcapsular fibrosis and the spleen was normal. Biopsy of the jejunum showed infiltration of the lamina propria with histiocytes containing PAS positive granular material (Figs. 3 and 4). The histologic picture of the lymph node (Fig. 5) was that of a lipogranulomatous reaction. Biopsies of the skin and gingival mucosa were normal and no PAS positive cells were found.

On the 27th hospital day the patient was placed on a diet containing approximately 100 g of fat daily. The presence of steatorrhea was confirmed by chemical examination of the stools but quantitative collection was not possible because of his poor cooperation. The appetite was good. While on this diet he lost weight, the serum lipids did not change significantly and the hemoglobin decreased (Fig. 6). MCT was then substituted for the fat in the diet for a seventeen day period. He ate poorly of this diet but his weight and serum lipids remained unchanged. The initial diet was resumed and it was continued for the following twenty-eight days.

Treatment for the anemia with ferrous sulphate, 650 mg daily, was started on the 55th hospital day (Fig. 7). No significant change in serum iron or hemoglobin occurred after 30 days. On the 63rd hospital day treatment with tetracycline, one gram daily, was initiated. After one week of treatment the fever was subsiding and the patient started to gain weight. A second study with ^{51}Cr-labeled erythrocytes started on the 80th hospital day did not show abnormal fecal blood loss. Apparent erythrocyte survival was now twenty-five days. In view of the lack of response to oral iron therapy, ferric hydroxide-dextran*, fifty mg daily, was started on the 8th hospital day. A rise in the serum iron, hemoglobin, hematocrit and erythrocyte count was apparent by the 91st hospital day.

During four months on tetracycline therapy the patient's mental status improved, he continued to gain weight and had a further rise in the hemoglobin. The chest pain

**Supplied as "Imferon" by Lakeside Laboratories, Inc., Milwaukee, Wisconsin.*

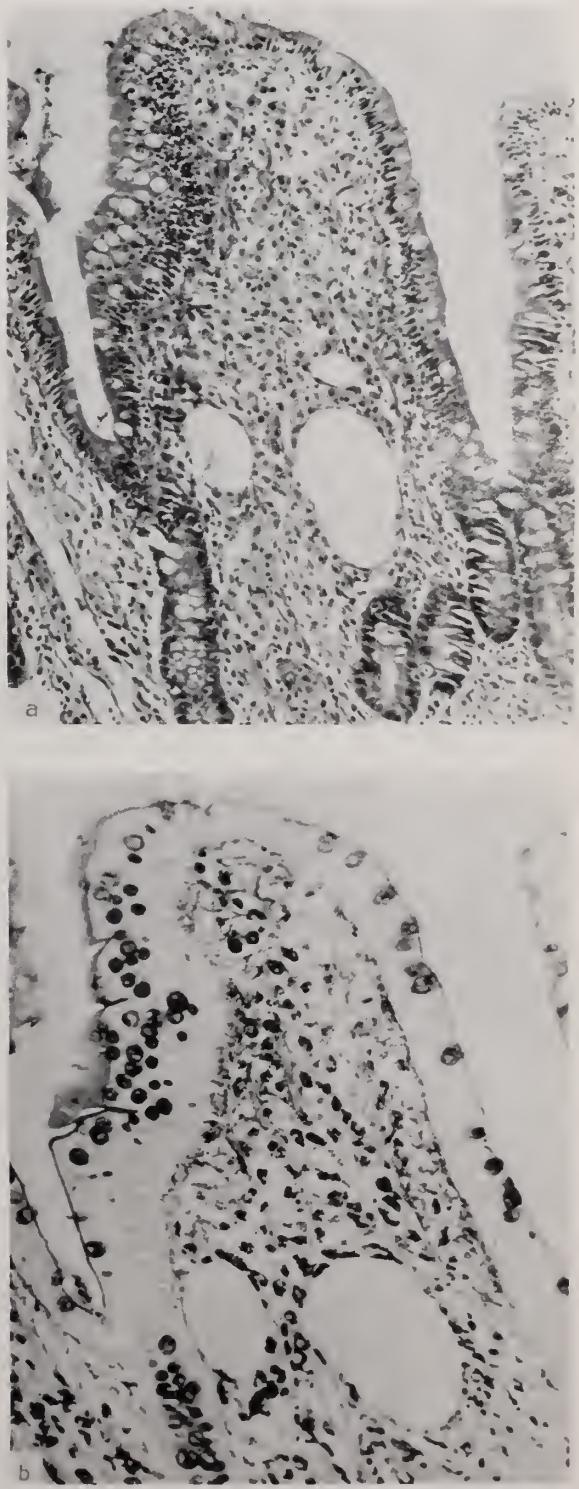


Fig. 3: *(a) Photomicrograph of the surgical biopsy of the jejunum stained with hematoxylin and eosin (X100). It demonstrates the widened villi with massive infiltration of the lamina propria by histiocytes and dilatation of the lymph spaces; (b) Same specimen, showing the characteristic periodic acid-Schiff positive granular material within the histiocytes.*

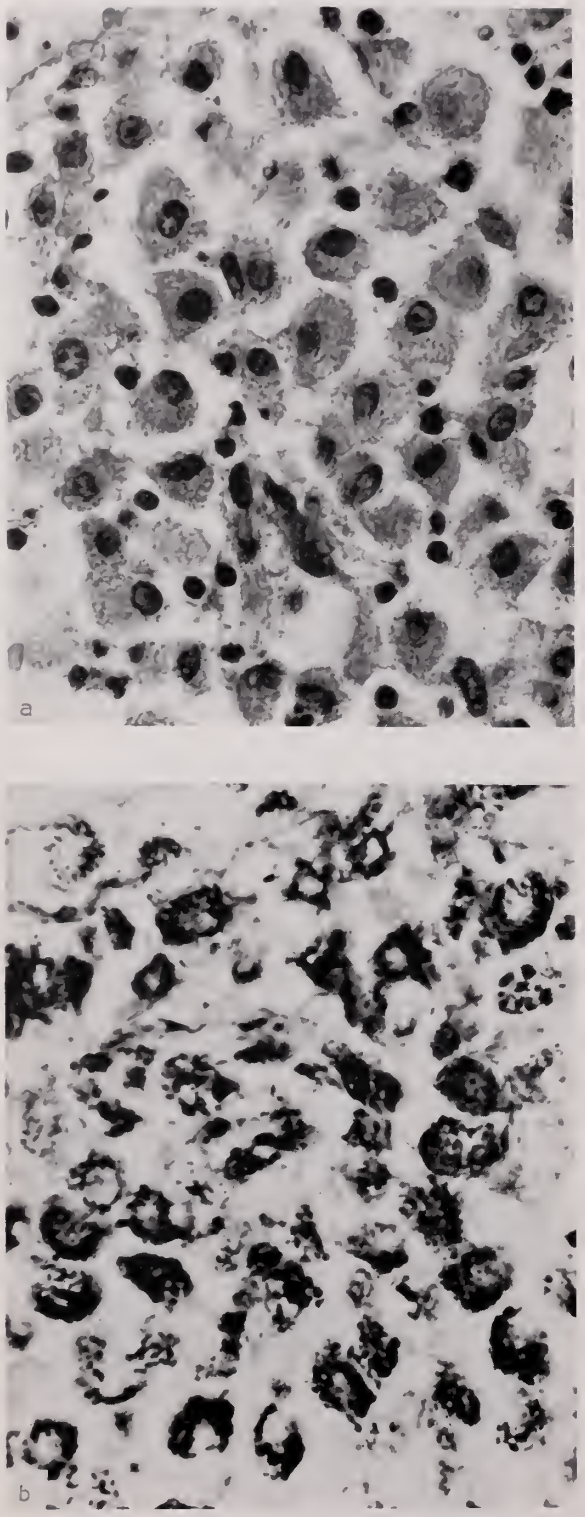


Fig. 4: *(a) High power view of lamina propria portraying histiocytes with granular cytoplasm (H&E, X450); (b) Histiocytes containing PAS positive intracytoplasmic particles (PAS, X450).*



Fig. 5: *Low power view (H&E, X40) of mesenteric lymph node showing lymphangiestasia.*

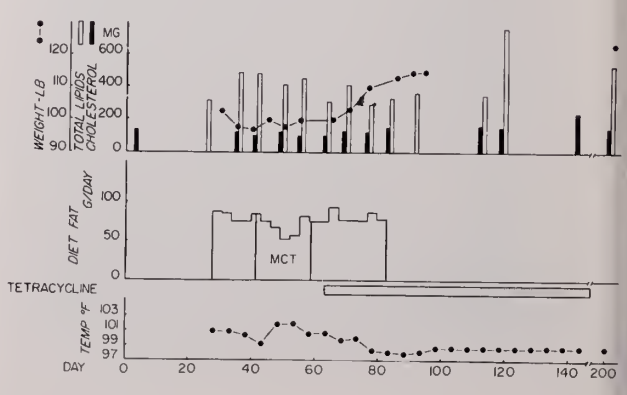


Fig. 6: *Course of the disease. Weight gain and return of temperature to normal took place soon after initiation of treatment with tetracycline. Slow rise in the serum lipids and cholesterol followed.*

and exertional dyspnea were relieved. Clubbing of the fingers disappeared. During this time he had two episodes of arthritis of the ankles. He also developed a furuncle on his face, a paronychia and several skin abscesses. *Micrococcus pyogenes var, aureus,* coagulase positive, was cultured from each of these lesions. This organism was resistant to tetracycline in vitro. The infections responded to treatment with oxacillin. The abnormalities in the electrocardiogram and chest roentgenogram cleared. The marked elevation of the alkaline phosphatase returned to normal. A second small bowel series (Fig. 2b) showed considerable improvement, although there was still slight mucosal coarsening in the jejunum and duodenum and evidence of hypersecretion in the distal ileum. The patient was discharged on August 11.

Treatment as an outpatient continued at the Diabetic and Psychiatry Clinics. The diabetes was well controlled with 20 units of NPH insulin daily. No antibiotic was given. He gradually gained weight and only occasionally did he have mild transient diarrhea or abdominal distress. On 3 occasions he had brief episodes of joint inflammation. His psychiatric condition has remained stable.

On January 13, 1969 the patient was readmitted to the hospital for re-evaluation. He weighed 160 lbs. and appeared obese (Fig. 1b). Physical examination, including the abdomen, was normal.

Laboratory examinations except for the blood glucose, were also normal (Table 1). Electrocardiogram showed low voltage. Chest roentgenogram was unchanged from previous ones. Small bowel series was normal (Fig. 2c). Peroral biopsy of the jejunal mucosa (Figs. 8 and 9) obtained with a Crosby capsule showed focal atrophy and effacement of the villi but none of the other abnormalities found in the previous specimen. Tuberculin (PPD, intermediate strength) and histoplasmin skin tests were negative.

He was discharged to the OP clinics receiving insulin.

Discussion

We have described a typical case of Whipple's disease which exhibited multiple arthralgias followed a few years later by gastrointestinal symptoms, cough, weight loss, skin pigmentation, and a hypochromic anemia. This man also had a schizophrenic reaction and

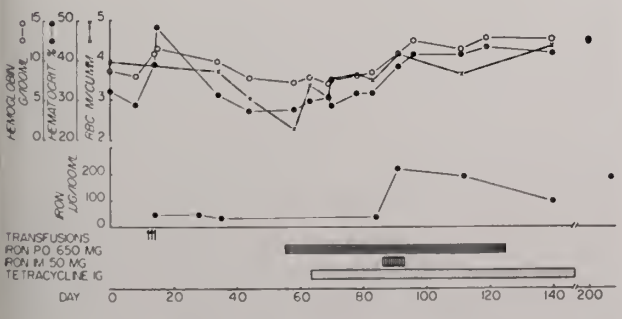


Fig. 7: *Hematologic response to therapy. Increase in hemoglobin, hematocrit, erythrocyte count and serum iron is evident after therapy with tetracycline and parenteral iron.*

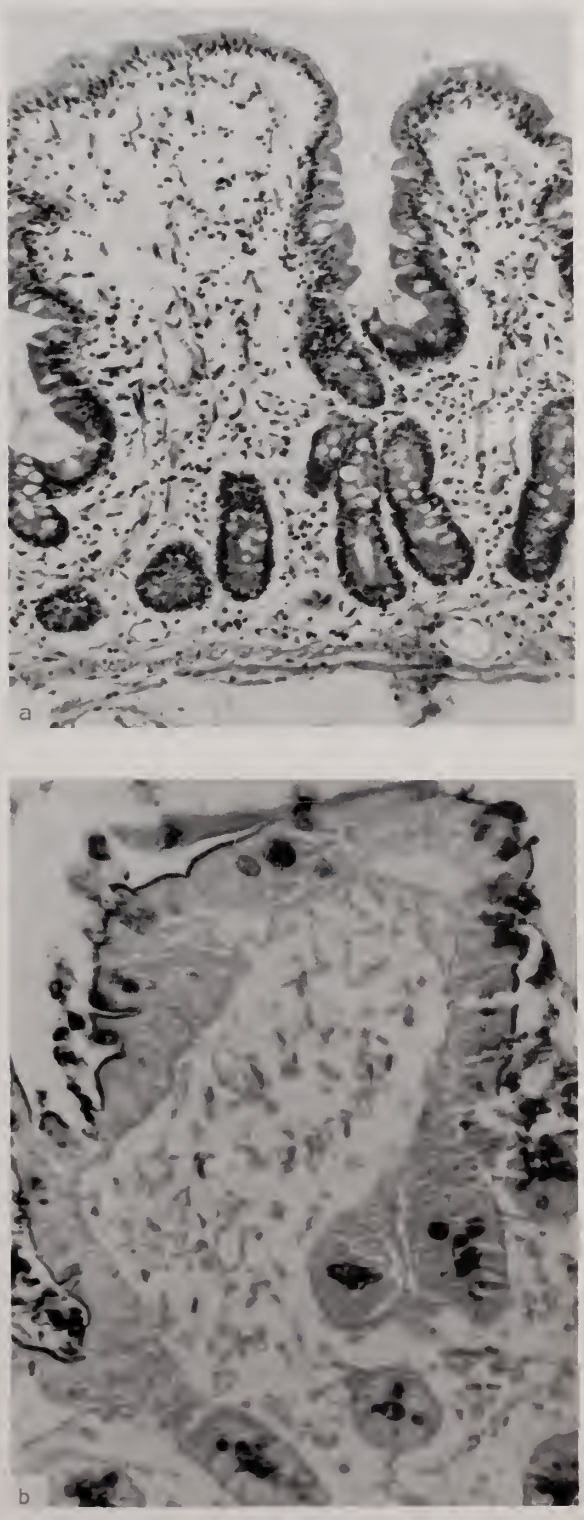


Fig. 8: *(a) Jejunal biopsy (peroral) in February 1969 showing widening and shortening of the villi but no histiocytic infiltration of the lamina propria (H&E, X150); (b) Same specimen, PAS stain.*

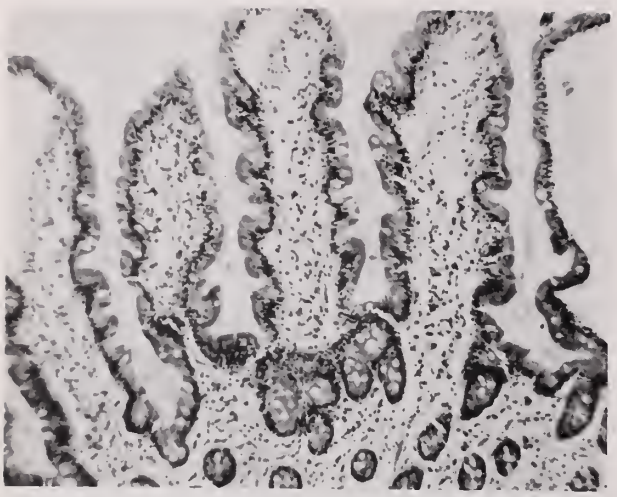


Fig. 9: *Another area of same biopsy shows normal villi (H&E, X50).*

diabetes mellitus both of which preceded the manifestations of Whipple's disease by several years. Two of his children had psychiatric disease. His mother is diabetic. These two conditions have been previously reported (11) in patients with this disease and in their relatives; however, the reason for their coincidence is not clear.

The symptomatology on admission suggested left ventricular failure. The cardiopulmonary findings as well as the electrocardiographic and chest X-ray findings pointed to pleural and cardiac involvement. Although involvement of the pericardium and pleura are frequently found on post-mortem examination in patients with Whipple's disease, clinical findings due to this have not been emphasized in the past (27). Enzinger and Helwig (28) reviewing autopsy material, noted pericarditis and pleuritis in 95 percent of their cases at the Armed Forces Institute of Pathology and in 87 percent of the cases in their review of the literature.

The presence of impaired fat absorption was confirmed by low levels of serum lipids, a low postprandial serum turbidity and abnormal triolein absorption. Lymphoma, intestinal tuberculosis and sprue were considered in the differential diagnosis. The presence of hypochromic anemia suggested the diagnosis of Whipple's disease and the histopathological findings on specimens obtained at laparotomy were characteristic. It should be noted that the diagnosis could have been established just as effectively through peroral jejunal biopsy had the procedure been available to us at the time.

An unusual finding was the very high serum alkaline phosphatase in the absence of abnormality of other liver function tests. The patient had not taken any drug capable of producing cholestasis. Hepatic involvement by Whipple's disease (28, 29) was considered but the liver biopsy was not diagnostic. Other authors have not found this enzyme to be significantly elevated in the blood. X-ray studies did not reveal any bone or biliary tract disease and there was no overt disturbance of calcium or phosphorous metabolism. The alkaline phosphatase became normal after treatment, for which reason we presume that it was caused by hepatic lesions due to the disease which were not well represented in the small biopsy specimen.

The anemia present was typical of iron deficiency as evidenced by the morphology of the erythrocytes, the absence of bone marrow iron and the low serum iron. The iron binding capacity was normal which is contrary to what is expected in this type of anemia. This may have been due to the presence of infection or to the abnormality of the plasma proteins which was found (30).

Intestinal blood loss has been suspected to be the cause of the anemia in intestinal lipodystrophy. Minor ulcerations of the mucosa and rupture of engorged villi have been incriminated as the source of bleeding (28). The absence of a positive stool guaiac reaction in many patients (31) has led some authors to question this explanation. The use of ^{51}Cr-tagged erythrocytes is a good measure of blood loss (18) since the chromium released from the erythrocytes is not reabsorbed and it thus provides a quantitative measurement. The considerable blood loss shown in this case explains at least in part the anemia and the shortened apparent red blood cell survival. The end of this bleeding coincided with other signs of improvement under tetracycline therapy.

An impaired absorption of iron in Whipple's disease has been suggested. Although the study with ^{59}Fe appeared to show normal iron absorption, the result may be open to some question because of the fact that stools were collected for only 72 hours. Delayed release of absorbed iron by the mucosa may not be detected unless stool collection is continued for at least five days (32). It is also possible that inorganic iron as used in this test is absorbed but not the organically bound iron found in food (33). The slow response to oral ferrous sulphate suggests impaired absorption although this could also have been due to the considerable loss of blood that was occurring at the time. The anemia started to improve five

days after initiation of therapy with iron by the parenteral route and 28 days after tetracycline. The interval seems too short to ascribe the response solely to the parenteral iron and since it took place after initiation of tetracycline therapy, it could be attributed to the amelioration of the disease with cessation of blood loss and improvement of iron absorption. Unfortunately, we were unable to allow an adequate interval between the commencement of these two therapies because of a deterioration in the patient's condition and his threats to leave the hospital.

We attempted to study in this patient the handling of medium-chain triglycerides (MCT) by the small intestine. This material is hydrolized in the intestinal epithelium and then transported as free fatty acids in the portal vein instead of the lymphatics (34). Since there is evidence of lymphatic obstruction in Whipple's disease, we thought that substitution of MCT as the main source of fat might have resulted in a decrease in steatorrhea. Since the patient was unable to cooperate in the stool collections because of his psychotic behavior, we were unable to study this properly. He apparently did not like the MCT diet and his food intake was not as good as with the control diet. This study was thus inconclusive.

Bone marrow cultures grew *Corynebacterium anaerobium.* A similar organism has been cultured by Caroli *et al* (35) from an inguinal lymph node rich in PAS positive material in a patient with Whipple's disease. Kok *et al* (36) also cultured a similar organism from a peroral jejunal biopsy in another patient. Kojecký *et al* (37) investigated by electron microscopy the organism isolated by Caroli and found it to be similar in size and shape to those present in the intestinal mucous membranes in patients with Whipple's disease. The patient did not subsequently allow us to perform peroral small bowel biopsies or a second bone marrow culture; therefore, the significance of the bacteriologic findings is uncertain. The isolation of like organisms in patients from different parts of the world suggests an etiologic role. Other investigators (6, 44) have not succeeded in growing any organism from biopsy material and transmission of infection to various experimental animals has never been accomplished.

The extraordinary concentration of what seem to be bacteria in the intestinal mucosa and other tissues and the paucity of lymphocytes and plasma cells in biopsy material in Whipple's disease has suggested to Maxwell and his co-workers (8) the existence of a defect in the immunological mechanism against bacterial infection. However, in one case which was studied while in remission, they found normal numbers and morphology of lymphocytes in the blood, normal blood levels of immunoglobulins and of antibodies against salmonella and streptococci. They did find functional impairment of lymphocyte function as measured by the incorporation of ^{14}C thymidine into DNA. Our patient, who was also studied during a period of remission, showed high values of IgG and relatively low values of IgM. This aspect of the disease deserves further study in patients during the active stage.

Although a variety of therapeutic measures, including X-radiation (38), nitrogen mustard (38, 39) and cortisone (40-42) has been employed in this disease, most recent reports favor the prolonged use of antibiotics (14-16, 17). The response to antibiotic therapy also favors a role for bacteria in this disease but whether this may be truly etiological or non-specific is uncertain. The response to treatment with tetracycline in our patient was dramatic, being evidenced by weight gain, marked rise in serum lipids and proteins, cessation of blood loss, and improvement of the radiologic appearance of the small bowel. There also was clearing of the clinical, radiologic and electrocardiographic evidence of the pleuritis and pericarditis. Prolonged remission as occurred in this patient has been documented by Ruffin (17). Recurrence sometimes occurs after many months.

In conditions where prolonged therapy with antibiotics is necessary, the occurrence of superinfection with drug-resistant bacteria can be a serious problem (43). This has not been reported by others in cases of Whipple's disease. Our patient had repeated superficial infections during tetracycline therapy but we were fortunate that the responsible *Micrococcus* was susceptible to oxacillin. Although it is evident that long-term therapy is needed in this disease, its optimum duration or the relative merits of various drugs remain to be determined. The occurrence of superinfections may be an argument in favor of intermittent rather than continuous tetracycline therapy.

In conclusion we would like to emphasize that a diagnosis of Whipple's disease can often be suspected clinically when an iron-deficiency-type anemia is found in association with evidence of intestinal malabsorption in an adult male. The presence of recurrent arthritis, psychiatric disease and diabetes should strengthen the suspicion. Peroral jejunal biopsy is the most direct route to diagnosis.

Summary

The first case of Whipple's disease reported from Puerto Rico is presented. In addition to the usual small bowel pathology and hypochromic anemia, this case showed clinical evidence of pleural and cardiac involvement. Associated conditions were diabetes mellitus and a schizophrenic reaction.

Studies with ^{51}Cr-labeled erythrocytes showed significant loss of blood from the gastrointestinal tract which appeared to be an important factor in the development of anemia. A slow response to oral therapy with iron suggested the presence of impaired iron absorption. The anemia responded to treatment with parenteral iron and tetracycline.

A marked increase in the serum alkaline phosphatase was present which returned to normal after treatment. It is presumed that this was due to hepatic involvement by the disease but biopsy study was inconclusive.

Corynebacterium anaerobium was found on bone marrow culture. An excellent response to tetracycline occurred. This was manifested by remission of fever, improvement of intestinal absorption, weight gain and clearing of the signs of cardiac and pleural involvement. Remission has persisted over 5 years after antibiotic therapy. Peroral jejunal biopsy showed disappearance of the characteristic histological findings. The response seems to support a bacterial etiology of Whipple's disease.

Repeated infections with tetracycline-resistant *Micrococci* occurred during treatment.

Resumen

Se informa un caso del mal de Whipple el cual, además de las manifestaciones características de malabsorción intestinal y anemia ferropénica, presentó evidencia de afección pleural, cardíaca y posiblemente hepática.

Estudios mediante el uso de eritrocitos marcados con cromio radiactivo demostraron pérdida considerable de sangre por la vía gastrointestinal, lo cual probablemente es la causa principal de la anemia. La respuesta algo lenta observada al tratamiento con hierro por la vía oral sugiere un factor adicional de malabsorción de este elemento.

Se cultivó *Corinebacterium anaerobium* de la médula ósea.

Se observó una pronta respuesta favorable al tratamiento con tetraciclina, el cual produjo una remisión de la enfermedad que ha perdurado por 5 años. Discutimos varios aspectos del diagnóstico, patofisiología y tratamiento de la enfermedad.

Addendum

The patient's 21-year old son was examined in March, 1969. A psychiatric diagnosis of undifferentiated schizophrenic reaction, has been made. Small bowel series, hemoglobin, serum iron and iron binding capacity, immunoglobulins, electroencephalogram, stool fat content and xylose absorption were found normal.

Acknowledgment

The correct diagnosis in this case was first suggested by Dr. L. Ehrlich, Chief, Radiology Service. We acknowledge the assistance of Dr. G. A. Ramírez de Arellano in the interpretation of the pathologic findings, the cooperation of Mr. B. Calderón and Mrs. R. Lluberes in the performance of lipid and fat analyses, as well as the assistance of Mr. R. Bernabe-Prida in the performance of several of the studies and the preparation of the illustrations. The exploratory laparotomy was performed by Dr. Héctor M. Nadal and Dr. José I. Iglesias.

References

1. *Whipple, G. H.:* A hitherto undescribed disease characterized anatomically by deposits of fat and fatty acids in the intestinal and mesenteric lymphatic tissues. Bull. Johns Hopkins Hospital 18: 382-391, 1907.
2. *Black-Shaffer, B.:* The tinctorial demonstration of a glycoprotein in Whipple's disease. Proc. Soc. Exper. Biol. Med. 72: 225-227, 1949.
3. *Sieracki, J. G., and Fine, G.:* Whipple's disease: Observations on systemic involvement. II. Gross and histologic observations. Arch. Path. 67: 81-93, 1959.
4. *Yardley, J. H., and Hendrix, T. R.:* Combined electron and light microscopy in Whipple's disease. Demonstration of "Bacillary bodies" in the intestines. Bull. Johns Hopkins Hospital 109: 80-98, 1961.
5. *Chears, W. C., Jr., and Ashworth, C. T.:* Electron microscopic study of the intestinal mucosa in Whipple's disease. Gastroenterology 41: 129-138, 1961.
6. *Dobbins, W. O. III and Ruffin, J. M.:* A light and electron-microscopic study of bacterial invasion in Whipple's disease. Amer. J. Path. 51: 225, 1967.
7. *Kurtz, S. M., Davis, T. D. Jr., and Ruffin, J. M.:* Light and electron microscopic studies of Whipple's disease. Lab. Invest. 11: 653-665, 1962.
8. *Maxwell, J. D., Ferguson, A., McKay, A. M., Imrie, R. C., and Watson, W. C.:* Lymphocytes in Whipple's disease. Lancet 1: 887, 1968.
9. *Plummer, K. et al:* Lipophagic intestinal granulomatosis (Whipple's disease). Arch. Intern. Med. 86: 280-310, 1950.
10. *Lepore, M. J.:* Whipple's intestinal lipodystrophy. Amer.

J. Med. 17: 160-164, 1954.

11. *Gross, J. B., et al:* Whipple's disease. Report of four cases including two brothers with observations on pathologic physiology, diagnosis and treatment. Gastroenterology 36: 65-93, 1959.
12. *Hollenberg, M.:* Whipple's disease: A case report with enzyme, histochemical and electron microscopic findings. Amer. J. Med. 32: 448-459, 1962.
13. *Bussler, A.:* Two cases of Whipple's disease. Amer. J. Dig. Dis. 21: 178-179, 1954.
14. *Davis, T. D., Jr. et al:* The effect of antibiotics and steroid therapy in Whipple's disease. Gastroenterology 44: 112-116, 1963.
15. *England, M. T., French, J. M., and Rawson, A. B.:* Antibiotic control of diarrhea in Whipple's disease. Gastroenterology 39: 219-233, 1960.
16. *Ashworth, C. T., et al:* Bacillus-like bodies in Whipple's disease; disappearance with clinical remission after antibiotic therapy. Amer. J. Med. 37: 481-490, 1964.
17. *Ruffin, J. M., Kurtz, S. M. and Raufail, W. M.:* Intestinal lipodystrophy: The immediate and prolonged effect of antibiotic therapy. J.A.M.A. 195: 476, 1966.
18. *Owen, C. A. Jr., Bollman, J. L., and Grindley, J. R.:* Radiochromium-labeled erythrocytes for the detection of gastrointestinal hemorrhage. J. Lab. Clin. Med. 44: 238-245, 1954.
19. *Bonnet, J. D., Hagedorn, A. O., and Owen, C. A. Jr.:* A quantitative method for measuring the gastrointestinal absorption of iron. Blood 15: 36-44, 1960.
20. *Rath, C. E., and Finch, C. A.:* Chemical, clinical and immunologic studies on the products of human plasma fractionation. XXXVIII. Serum iron transport. Measurements of iron binding capacity of serum in man. J. J. Clin. Invest. 28: 79-85, 1949.
21. *Butterworth, C. E., Jr., and Pérez-Santiago, E.:* Studies on the oral and parenteral administration of D(+)xylose. New Engl. J. Med. 261: 157-164, 1959.
22. *Rivera, J. V., Toro-Goyco, E., Rodríguez-Molina, R., Coca-Mir, R., and Bernabe-Prida, R.:* The triolein absorption test in the diagnosis of steatorrhea. Gastroenterology 43: 13, 1962.
23. *Toro-Goyco, E., and Rivera, Julio V.:* Postprandial serum turbidity in the detection of impaired fat absorption. Bol. Asoc. Méd. P. Rico 56: 141-149, 1964.
24. *Schilling, R. F.:* Recent studies of intrinsic factor and the utilization of vitamin B-12. Fed. Proc. 13: 769-775, 1954.
25. *Van de Kamer, J. M., Ten Bokkel Huinink, R., and Weyers, H. A.:* Rapid method for the determination of fat in the feces. J. Biol. Chem. 177: 347-355, 1947.
26. *Heiskell, C. L.:* A simple method for quantitation of serum beta-lipoproteins by means of the immunocrit. Amer. J. Clin. Path. 35: 222-226, 1961.
27. *Farnan, P.:* Whipple's disease: The clinical aspect. Quart. J. Med. 28: 163-182, 1959.
28. *Enzinger, F. M. and Helwig, E. B.:* Whipple's disease. A review of the literature and report of fifteen patients. Virchow's Arch. Path. Anat. 336: 238-269, 1963.
29. *Upton, A. C.:* Histochemical investigations of the messenchymal lesions in Whipple's disease. Amer. J. Clin. Path. 22: 755-764, 1952.
30. *Wallerstein, R. O. and Mettier, S. R.:* Iron in Clinical Medicine, University of California Press, Berkeley and Los Angeles, 1958, p. 16-17.
31. *Bobroff, J.:* Whipple's disease. Report of a case in a Negro man followed by serial biopsies of the small intestine. Gastroenterology 45: 108-113, 1963.
32. *Conrad, M. E., Jr. and Crosby, W. H.:* Intestinal mucosal mechanisms controlling iron absorption. Blood 22: 406-415, 1963.
33. *Josephs, H. W.:* Absorption of iron as a problem in human physiology. A critical review. Blood 13: 1-54, 1958.
34. *Playoust, M. R., and Isselbacher, K. J.:* Studies on the intestinal absorption and intramucosal lipolysis of a medium-chain triglyceride. J. Clin. Invest. 43: 878, 1964.
35. *Caroli, J. et al:* Bacterial etiology of Whipple's disease. III. A new case. Isolation of *Corynebacterium anaerobium.* Arch. Mal Appar. Dig. 52: 177-194, 1963.
36. *Kok, N., Kybkaer, R., and Rostgaard, J.:* Bacteria in Whipple's disease. I. Results of cultivation from repeated jejunal biopsies prior to, during and after effective antibiotic treatment. Acta Path. et Microbiol. Scandinav. 60: 431-449, 1964.
37. *Kojecky, Z., et al:* Frequence of occurrence of microbes in the intestinal mucosa in the lymph nodes during a long-term observation of a patient suffering from Whipple's disease. Gastroenterología 101: 163-172, 1964.
38. *Caravati, C. M.:* Diagnosis of Whipple's disease by rectal biopsy with a report of three additional cases. Ann. Intern. Med. 58: 166-170, 1963.
39. *Maddock, I., Ralston, M., and Welden, S.:* Whipple's disease. Remission following nitrogen mustard. Gastroenterology 35: 497-501, 1960.
40. *Wang, C. I. and Janowitz, H. D.:* Intestinal lipodystrophy amenable to corticosteroid therapy. Gastroenterology 30: 475-487, 1956.
41. *Holt, P. R., Isselbacher, K. J., and Jones, C. M.:* The reversibility of Whipple's disease. New Engl. J. Med. 264: 1335-1339, 1961.
42. *Schaffner, F., and Scherbel, A. L.:* Whipple's disease. Gastroenterology 29: 109-119, 1955.
43. *Dubos, R. J.:* Bacterial and Mycotic Infections of Man. J. B. Lippincott Company, Philadelphia and Montreal, 1958, p. 691.
44. *Sherris, J. C., Roberts, E., and Pirus, R. L.:* Microbiological studies of intestinal biopsies taken during active Whipple's disease. Gastroenterology 48: 708, 1965.

OBESITY IN PUERTO RICAN CHILDREN AND ADULTS

N. A. Fernández López, MS, MD
José C. Burgos, MD
Conrado F. Asenjo, PhD

An islandwide nutrition survey was carried out July through November 1966 in a representative sample of the Puerto Rican population. The survey was done using a stratified master sample developed by the Office of Research of the Commonwealth Department of Health. The stratification of the sample was made utilizing the data on population and household distribution from the 1960 population census.

The survey was organized and conducted by a research team from the Department of Biochemistry and Nutrition, School of Medicine, University of Puerto Rico with the assistance of the technical and field personnel of the Office of Research of the Puerto Rico Department of Health, and of the medical and paramedical personnel from the various island Health Districts (1).

One of the salient findings of this survey was a high prevalence of overweight and obesity in the population of Puerto Rico. Therefore, we thought that a specific report on this matter was desirable considering the well known relation of excess weight to cardiovascular diseases, diabetes, accidents and other conditions which are among our leading causes of death.

Methods

The height, weight and skinfold data reported in this article were collected in a stratified sub-sample of 142 families selected systematically from the original master sample. Chi-square tests showed that with a probability of 99 percent the distribution of the families included was comparable to the general distribution of the master sample.

The data reported includes 558 children, adolescents and adults studied in five examination centers established temporarily in the various island Health Districts. Heights were measured with a steel measuring tape, without shoes, and the person standing erect against a flat wall. Subjects were weighed in their underclothing and without shoes. Skinfold measurements were taken at the posterior mid-portion of the arm and the lower angle of the scapula with Lange Skinfold calipers.

For the purpose of this paper obesity was considered as being over 20 percent above the corresponding standard weight. Subjects having between 10 and 20 percent over the standard weight were classified as overweight. The percent standard weight was calculated in terms of weight for age up to 18 years and weight for height above that age. Puerto Rican standards (2) were used in evaluating children from 7 to 17 years old while United States tables (3) were employed for children 6 and 18 years of age.

Results

A high prevalence of obesity was observed in adults, particularly women (Table I). Twenty eight percent and 12 percent, respectively, of the women and men 19 years old and over were obese. Women 40-59 years of age showed the highest prevalence with 38 percent. Among men, overweight and obesity were more common in the 19 to 39 age group.

Obesity was more prevalent in urban people, but among young adults (19 to 39 years old) the occurrence was about the same in both urban and rural areas (Table II). School children, adolescents, and subjects over 60 years of age from urban communities showed a much higher prevalence of obesity than their rural contemporaries. The average skinfold thicknesses reported in Table II confirmed the preceding data. In general, the skinfolds of the urban population were thicker than the rural.

Table III shows the prevalence of obesity according to annual family income. In adults, the mean percent standard weight and the occurrence of obesity increased in direct relation to income up to seven thousand dollars. Above that income level, a decrease in both was observed. Children and adolescents, however, showed a constant increase in the prevalence of obesity from annual incomes of $3,000 and up.

From the Department of Biochemistry and Nutrition, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico.

This study was supported by Grant AM-06032 from the National Institutes of Health to the Dept. of Biochemistry and Nutrition, School of Medicine, University of Puerto Rico.

TABLE I: PREVALENCE OF OVERWEIGHT AND OBESITY BY AGE AND SEX

Age Group (Years)		6 - 12			13 - 18			19 - 39			40 - 59			⩾ 60		
Sex		M	F	MF	M	F	MF	M	F	MF	M	F	MF	M	F	MF
Number		102	66	168	39	45	84	60	87	147	47	50	97	31	31	62
Mean Age		8.9	9.0	9.0	15.0	15.3	15.1	30	29	29	51	49	50	69	69	69
Mean Height (inches)		50.3	50.8	50.5	62.3	61.1	61.7	66.0	60.9	63.0	64.6	59.5	61.9	64.3	58.7	61.5
Mean Weight (lbs.)		56.8	58.6	57.5	102	108	106	149	127	136	141	131	136	136	124	130
Mean Percent Standard Weight		86	90	88	88	97	93	105	107	106	102	112	108	100	108	104
Overweight * (Percent)		3	8	5	3	7	5	20	11	15	19	20	20	16	13	15
Obese ** (Percent)		5	6	5	3	7	5	18	22	20	9	38	24	10	29	19
Mean Skin Fold (mm)	Arm	8.8	9.9	9.2	8.0	16.9	12.8	12.6	21.1	17.7	20.0	22.5	17.4	8.9	20.0	14.4
	Scapula	6.0	6.9	6.3	7.2	13.1	10.3	16.3	20.0	18.5	14.9	23.8	19.5	11.5	18.0	14.7

* - *10 to 20 percent over the standard weight.*

**. *20 percent over the standard weight.*

TABLE II: PREVALENCE OF OVERWEIGHT AND OBESITY BY URBAN AND RURAL ZONE

ZONE		URBAN					RURAL				
Age Group (Years)		6-12	13-18	19-39	40-59	⩾60	6-12	13-18	19-39	40-59	⩾60
Number		46	20	65	35	21	117	61	81	59	41
Mean Age		8.9	15.4	29	51	68	9.5	15.0	29	50	70
Mean Height (inches)		49.0	62.3	63.1	61.9	61.7	53.6	61.4	62.8	61.9	61.4
Mean Weight (lbs.)		57	111	139	140	142	58	103	134	133	124
Mean Percent Standard Weight		94	97.	108	111	114	86	92	105	105	99
Overweight (Percent)		4	0	25	20	19	5	7	7	19	12
Obese (Percent)		11	10	20	29	33	3	3	21	20	12
Mean Skin Fold (mm)	Arm	11.4	14.5	18.7	18.0	18.2	8.4	12.0	16.8	16.7	12.5
	Scapula	8.2	12.6	19.5	21.2	18.6	5.8	9.6	17.5	18.4	12.8

TABLE III: PREVALENCE OF OVERWEIGHT AND OBESITY BY FAMILY ANNUAL INCOME

Age Group	19 YEARS AND OVER					6 – 18 YEARS				
Income Group ($ year)	999	1000 to 2999	3000 to 4999	5000 to 6999	⩾7000	999	1000 to 2999	3000 to 4999	5000 to 6999	⩾7000
Number	56	114	62	29	41	29	143	36	24	18
Mean Age (yr.)	52	43	40	41	43	11.2	10.0	11.2	12.0	12.2
Mean Height (inches)	61.3	62.2	63.2	61.9	63.2	52.5	50.9	55.2	57.4	58.4
Mean Weight (lbs.)	121.8	136.0	138.0	136.7	141.3	65.3	65.9	78.0	88.7	92.4
Mean Percent Standard Weight	97.6	107.4	105.3	111.9	108.8	79.2	84.3	89.0	101.4	102.2
Overweight (Percent)	12.4	16.6	16.1	13.8	19.5	0	6.5	2.8	4.2	5.6
Obese (Percent)	14.3	22.8	22.6	31.0	19.5	3.6	1.5	5.6	16.7	22.2
Mean Arm Skinfold	14.9	17.6	16.2	19.0	17.2	7.9	9.5	10.0	14.1	14.2

There was a close direct relationship between the observed average percent standard weights of children, adolescents and adults, and their respective mean arm skinfold thicknesses.

Table IV, summarizes the prevalence of obesity by Health Districts. As a whole, the prevalence increased with age until 40 years in the West and North Districts, and until age 60 in the East and South Districts. After those ages a reduction in prevalence was observed, except in the Northeast District where a 10 percent increase occurred in persons over 60 years old. In subjects 19 years and over, the prevalence of obesity was more or less evenly distributed among the five health districts with the South showing the highest occurrence. In children 6 to 12 years old and in persons over 60, the Northeast District had the higher prevalences. In general, the lowest occurrences of overweight and obesity were observed in the East District.

TABLE IV: OBESITY BY HEALTH DISTRICTS

Age (years)	6 - 12	13 - 18	⩾19
North East	10	8	20.0
South	4	0	25.0
West	2	0	22.7
East	0	0	17.1
North	3	14	21.6

Discussion

Obesity is not only an unesthetic condition, but a pathologic one. Therefore the above described findings are significantly meaningful regarding the general health and welfare of our people. Marked overweight is characterized by several important complications including arterial hypertension, heart disease, diabetes mellitus, chronic bronchitis, pulmonary emphysema, liver cirrhosis, accidents, complications of psychiatric, obstetric and surgical nature and various other conditions (4) (5). Some of these frequent complications are among the leading causes of mortality and morbidity in Puerto Rico (6). Also, these complications have been proven to shorten the life span of the obese individual, be-

cause of the stress imposed on the vital organs by the excess weight (7). The considerable prevalence of overweight and obesity in our middle and upper income families and the constant increase in occurrence among children and adolescents from families with annual incomes above three thousand dollars, demand that some urgent preventive measures be taken in a rapidly developing country like Puerto Rico. Otherwise, more of the previously mentioned complications of obesity will continue to appear.

In Puerto Rico there is also a growing use of drastic and dangerous methods to correct obesity such as the overuse of anorexigenic agents and diuretics, the use of crash diets, exercises, and dehydrating procedure which represent an additional menace to the person's health.

These methods are usually ineffective because they do not take into consideration the various etiologic and complicating factors of the condition. Obesity is basically due to an excess ingestion of calories as a result of undesirable eating habits. However, several other etiologic factors may be involved such as: decreased physical activity, pyschologic and emotional disturbances, genetic factors, and endocrine dysfunctions (8).

The proper treatment of the condition, therefore, has to be done in an individualized manner taking in consideration all the possible etiological aspects and medical complications which could be present in a particular patient. Treatment should include a complete medical history and physical examination, the necessary laboratory tests, a well-balanced low calorie diet adjusted to the individual calorie needs of each patient, proper exercises, and the use of drugs which may be indicated in the management of the existing causes and complications.

The considerable prevalence of obesity in our population reported in this article represents a challenge to the Puerto Rican physician in regard to the control of this condition both through the administration of an effective medical treatment and through the proper education of the people.

Summary

An islandwide nutrition survey was carried out in 1966 in a representative sample of the Puerto Rican population. A salient finding of the survey was a considerable prevalence of overweight and obesity. Twenty eight percent and twelve percent, respectively, of the women and men 19 years old and over were obese. Women between 40 and 59 years of age showed the highest prevalence. Obesity was more common in urban families. Among adults, both overweight and obesity increased with family annual income up to seven thousand dollars; while children and adolescents showed a constant increase from three thousand dollars and up.

Since obesity is characterized by several medical complications, and in Puerto Rico there is a growing use of ineffective and dangerous procedures to correct the condition it is urgent that effective measures be taken immediately to solve the existing problem. Several etiologic factors may also be involved in obesity therefore treatment should be carried out by physicians in an individualized manner.

Resumen

En el año 1966 se realizó una encuesta nutricional en una muestra representativa de la población puertorriqueña. Un hallazgo sobresaliente de ésta fue una considerable prevalencia de obesidad. Veintiocho y doce porciento, respectivamente, de mujeres y hombres de 19 años o más estaban obesos. Las mujeres entre 40 y 59 años de edad mostraron la prevalencia más alta.

La condición fue más común en las familias urbanas. En los adultos, la prevalencia de sobrepeso y obesidad aumentó de acuerdo al ingreso anual de la familia hasta siete mil dólares; mientras que en los niños y adolescentes se observó un aumento constante en la prevalencia desde tres mil dólares en adelante.

Ya que la obesidad se caracteriza por varias complicaciones médicas y en Puerto Rico se recurre cada día más al uso de métodos peligrosos e inefectivos para corregir la condición, se considera urgente el empleo de medidas efectivas para resolver el problema existente. Varios factores etiológicos pueden estar envueltos en la obesidad, por lo cual su tratamiento debe ser realizado por un médico en forma individualizada.

References

1. *Fernández, N. A., Burgos, J. C., Asenjo, C. F. and Rosa, L.:* Nutritional status of people in areas of Puerto Rico: Master sample survey, mimeographed report, Dec. 1968.
2. *Knott, V. B.:* Stature, leg girth and body weight of Puerto Rican private school children. Growth, 27: 157, 1963.
3. *Nelson, W. E.:* Textbook of Pediatrics, Seventh Edition, W. B. Saunders Co., Philadelphia, 1959.
4. *Duncan, G. G. et al:* Intermittent total fasts and obesity. Postgrad. Med., 38: 523, 1965.

5. *Cecil, R. L. and Loeb, R. F.:* A Textbook of Medicine, ed. 10, Philadelphia, W. B. Saunders Co., pp. 636-641, 1959.



Gentlemen, coffee break!

OBSERVATIONS ON INVESTIGATIONS PRIOR TO SCHISTOSOMIASIS CONTROL

Peter Jordan, MD

Transmission of bilharziasis has been controlled in Puerto Rico (1), in the Philippines (2, 3), South Africa (4), Rhodesia (5), Egypt (6), and Venezuela (7). In these areas the schemes have been on a comparatively large scale, and generally they have had a research background. In such projects and others where new control measures are being investigated, or where different measures are being compared, extensive pre-control investigations are essential (8).

However, if these investigations are stressed as being necessary wherever control is required, it will be difficult if not impossible to interest many local public health authorities in control. Extensive biological investigations may reduce the cost of molluscicide considerably, but such an advantage may be outweighed by the cost of the preliminary investigations, and in some areas at least where the general pattern of transmission is known, but where the details may be lacking, limited control should be encouraged forthwith at the public health authority level.

I do not intend to discuss all the various investigations which can profitably be carried out before, during, and after the institution of different methods of control, but I would like to say a few words about data required for the more usual methods and particularly that required for the early human assessment of control efficiency. I would also like to make a few comments on control methods.

In schemes with a research basis, the collection of as much information as possible before and after control is necessary - *firstly* to provide information on which control procedures can be planned to ensure their maximum efficiency (planning data) and *secondly* to provide a base line with which post-control data can be compared (assessment data).

The final assessment of any control procedure can only be made by studying the changes which occur in the parameters used for measuring human infection.

Parameters which are being used are prevalence, incidence and intensity of infection, but I think we must admit that we don't know much about the methodology of control assessment and the relative merits of these different parameters have yet to be evaluated.

Prevalence is most commonly used and is the one most easily obtained. From pre-control data the prevalence to be expected after successful control can be estimated.

Incidence - a measure of the amount of transmission taking place - is determined by finding the number of people negative for schistosomiasis at one examination, who become positive after a fiven time period - preferably 12 months so as to cover any seasonal differences in transmission. The incidence has the disadvantage that two specimens of stool or urine are required, but in control schemes where mass chemotherapy is used, prevalence and intensity of infection are obviously going to be severely affected by treatment, and incidence is the only parameter which can be used for detecting reduced transmission.

The intensity of infection is at present based on egg counting techniques and is the newest of the parameters to be considered for control assessment (9).

The assessment of control schemes by parasitological parameters has been used in most countries where control has been in operation, but has the disadvantage that the population must be producing faecal specimens every so often - the collection of these and their subsequent examination is not exactly cheap, it is time-consuming and of perhaps prime importance, a nuisance to the population. I should like to suggest that skin testing and serological methods (10) might prove quicker, cheaper, and more acceptable to the population. While it is generally acknowledged that skin tests are not fool proof, with false positive and negative reactions occurring, parasitological techniques where one stool is examined probably have a greater error in so far as false negatives are concerned, though the risk of false positives should be much less.

Serological techniques are also liable to give false reactions - the complement fixation test appears to be the most reliable but is not generally suitable for survey work. The fluorescent antibody test has the advantage that the necessary blood can be ob-

tained by finger prick but non-specific reaetions are not uncommon. The Cercarian-Hullen Reaktion and Circumoval Precipitin tests which require little in the way of sophisticated equipment for their performance and are relatively simple to do probably have not been evaluated in this type of work sufficiently.

Using either parasitological or immunological techniques or better still, both, in order to compare them, prevalence and incidence of infection should be determined in areas in which control is planned. At the present time intensity of infection can be measured only by parasitological methods.

The age groups which should be examined will vary from one area to another depending on the epidemiological pattern - in some areas a high prevalence of infection may be found in the under five-year olds, in other areas infection may not be common until later. While children are usually considered the most suitable age group for assessing results of control, it is perhaps not irrelevant to consider also the adult population, who may be exposed to infection in sites different from those where children are infected.

The reason for the lower prevalence rates found in adults compared with the second decade population group, who usually show the highest prevalence, is not definitely known. It may be a manifestation of acquired resistance, but it may be a result of the adults having less contact with water than the younger age groups (11, 12), with their adult worm population gradually dying off and not being replaced by new infections - or both factors may be involved.

When effective control is established, the changes which will occur in the infected adults are not clear. If the adult prevalence level is associated with continued re-infection, and this is stopped by control, one might expect an increase in the rate at which individuals become negative. If however, adults are immune and are not being re-infected, theoretically one would not expect cessation of transmission to affect this rate.

While the final assessment of the efficiency of control measures must show reduced transmission in the human population, some preliminary or interim results might be obtained from biological studies if adequate base line data are obtained.

Success of measures aimed at preventing contamination of water, might be apparent if reduced cercarial infection rates in snails and reduced cercarial densities in water are found. These indices of transmission might also be reduced when water supplies are installed since the need for the people to go to water has been removed and they may, thus, be less likely to contaminate the river or pond environment. Successful mollusciciding will, of course, show itself in reduced snail populations but further evidence of success would be reduced cercarial densities in water.

"Planning data" required for a comprehensive molluscicieding campaign consists essentially in determining when and where transmission is taking place. This involves regular sampling of snail habitats - potential and proven - over different seasons with snails being returned after results of all necessary examinations have been recorded (13, 14). The cercarial infection rate in snails is the most important determination but this should be coupled with efforts to detect cercariae in the water (15, 16, 17). These planning data also provide a base line for assessing results of molluciciding.

Preliminary investigations in such a program require also that the different available chemicals are tested in the local waters to ensure that no local peculiarities are present which influence detrimentally their efficiency (18).

Preliminary drug trials should be made to ascertain the most satisfactory drugs and regimes of treatment if mass therapy is envisaged. Although mass chemotherapy has had little place in control schemes in the past, newer drugs make it a possible line of approach. Administratively, mass treatment may be difficult and in order to determine which population groups are the main contaminators and, therefore, worthy of special effort, the relative transmission potential based on prevalence, egg output, and number of people in different age groups should be calculated (19, 20). Hatchability of eggs may also be relevant, but there is little evidence that this varies in different age groups.

In conclusion, a few words about different approaches to control might not be out of place. First, the infection can be "built out" by the provision of better housing and sanitary facilities which are part of any town or settlement development project. However, rivers running through such a town frequently fail to receive the treatment they deserve (21, 22) and transmission does take place in the center of some state capitals as a result (23).

Molluscicieding campaigns do nothing more than kill snails. This should be associated with reduced transmission but for how long molluscicieding must continue is not at present known, and continued surveillance of old and new transmission sites in the whole area is necessary for many years.

Water supplies and sanitation are expensive and while the provision of the former has been shown to be effective (5) in reducing transmission the value of the latter is questionable (24). Both facilities, however, are necessary for the general improvement in the standard of living; both should affect the health of the people in more ways than possibly reducing the prevalence of bilharzia; and in the installation of both, community effort can be encouraged to reduce costs. These can be further reduced by small payments for the water supplied and of some importance, the required biological pre-control data is less detailed and, therefore, less costly than in molluscicide.

Mass chemotherapy as a control measure has the "public relations" advantage that the community is receiving treatment and individuals are likely to feel the benefit of it.

In the type of project for which it has been suggested, extensive pre and post-control data are essential, the cost of its collection is perhaps not all that important, the cost of the control measures is usually the prime concern. However, the collection of data—required for control, planning, and or assessment on a research basis—is high and this should, I suggest, be considered in any study of the methodology of schistosomiasis control and its assessment.

References

1. *Ferguson, F. F., Palmer, J. R., and Jobin, W. R.:* Control of schistosomiasis in Vieques Island, Puerto Rico. Amer. J. Trop. Med. Hyg. 17: 858, 1968.
2. *Pesigan, T. P., and Hairston, N. G.:* The effect of snail control on the prevalence of *Schistosoma japonicum* infection in the Philippines. Bull. WHO 25: 479, 1961.
3. *Anon, L.;* The Leyte bilharziasis project. WHO Chron. 13: 39, 1959.
4. *Pitchford, R. J.:* Findings in relation to schistosome transmission in the field following the introduction of various control measures. S. Afr. Med. J. 40: 1, 1966.
5. *Shiff, C. J., and Clarke, V. de V.:* The effect of snail surveillance in natural waterways on the transmission of *Schistosoma haematobium* in Rhodesia. Cent. Afr. J. Med. 13: 133, 1967.
6. *Farooq, M., Hairston, N. G., and Samaan, S. A.:* The effect of areawide snail control on the endemicity of bilharziasis in Egypt. Bull. WHO 35: 369, 1966.
7. *Jove, J. A.:* A half century of the campaign against ancylostomiasis, bilharziasis and other parasitic diseases. Rev. Venez. Sanid. Asist. Soc. 25: 143, 1960.
8. Second African Conference on Bilharziasis. WHO Technical Report, Series 204, Geneva, 1960.
9. *Jordan, P.:* Egg Output in Bilharziasis in Relation to Epidemiology, Treatment, Pathology and Control in Bilharziasis, F. K. Mostafi, ed., Springer-Verlag Berlin Heidelbert, New York, 1967, p. 93.
10. *Kagan, I. G., and Pellegrino, J.:* A critical review of immunological methods for the diagnosis of bilharziasis. Bull. WHO 25: 611, 1961.
11. *Farooq, M., Nielsen, J., Samaan, S. A., Mallah, M. B., and Allam, A. A.:* Epidemiology of *Schistosoma haematobium* and *S. mansoni* infection in the Egypt 49 project area. 2. Prevalence of bilharziasis in relation to personal attributes and habits. Bull. WHO 35: 293, 1966.
12. *Jobin, W. R., and Ruiz-Tibén, E.:* Bilharzia and patterns of human contact with water in Puerto Rico. Bol. Asoc. Méd. P. Rico 60: 279, 1968.
13. *Webbe, G.:* The transmission of *Schistosoma haematobium* in an area of Lake Province, Tanganyika. Bull. WHO 27: 59, 1962.
14. *Webbe, G.:* Transmission of bilharziasis. 1. Some essential aspects of snail population dynamics and their study. Bull. WHO 33: 147, 1965.
15. *Rowan, W. B.:* Daily periodicity of *Schistosoma mansoni* cercariae in Puerto Rican waters. Amer. J. Trop. Med. Nyg. 7: 374, 1958.
16. *Barrett, P. D., and Ellison, F. R.:* A continuous flow centrifuge for testing the presence of bilharzia cercariae in water. Cent. Afr. J. Med. 11: 338, 1965.
17. *Butler, J. M., Jr., Ferguson, F. F., and Palmer, J. R.:* A new field device for quantitative recovery of *Schistosoma mansoni* cercariae. Public Health Rep. 82: 250, 1967.
18. Snail Control in the Prevention of Bilharziasis. WHO, Geneva, 1965, p. 255.
19. *Jordan, P.:* Some quantitative aspects of bilharzia with particular reference to suppressive therapy and molluscicide in control of *S. haematobium in* Sukumaland, Tanganyika, E. Afr. Med. J. 40: 250, 1963.
20. *Farooq, M., and Samaan, S. A.:* Relative potential of different age groups in transmission of schistosomiasis in the Egypt-49 project area. Ann: Trop. Med. Parasit. 61: 315, 1967.
21. *Rowan, W. B.:* Sewage treatment and schistosome eggs. Amer. J. Trop. Med. Hyg. 13: 572, 1964.
22. *Rowan, W. B.:* Schistosomiasis and the chlorination of sewage effluent. Amer. J. Trop. Med. Hyg. 13: 577, 1964.
23. *Teesdale, C.:* Ecological observations on the molluscs of significance in the transmission of bilharziasis in Kenya. Bull. WHO 27: 759, 1962.
24. *Scott, J. A., and Barlow, C. H.:* Limitations to the control of helminth parasites in Egypt by means of treatment and sanitation. Amer. J. Trop. Med. Hyg. 27: 619, 1938.

EDITORIAL

PROTECTIVE FACTORS FROM ATHEROSCLEROSIS IN PUERTO RICAN VETERANS?

It seems reasonably well established that the prevalence of atherosclerotic disease is lower in Puerto Rico than in the United States (1). Not quite as well documented is the possibility that this prevalence may be lower in the rural than the urban population of Puerto Rico. Although several investigators (2, 3, 4, 5, 6) have made observations that suggest that this is the case, the issue is still pending a definite conclusion.

Suspecting that such a difference in prevalence of atherosclerosis between the urban and rural population of Puerto Rico may exist, a study of possible protective factors was carried out in Puerto Rican veterans (7). An unselected sample of 240 veterans consisting of 160 urban area residents and 80 rural area residents was carefully studied by experienced dietitians and social workers. The socio-economic-dietary factors thus obtained were compared to physical findings and serum cholesterol determinations.

The prevalence of clinical heart disease and atherosclerosis was not significantly different in both groups. The rural area veterans had a significantly lower income, spent less money for food and consumed less calories, fat and proteins than veterans from urban areas. Various recognized coronary risk factors were evaluated including the serum cholesterol, diastolic blood pressure, cigarette smoking, overweight, and prevalence of diabetes mellitus. Of these, only the serum cholesterol was significantly different in the urban and rural groups. The mean serum cholesterol of urban residents was 196.0 mg. percent, while that of rural residents was 183.13 mg. percent ($p < .05$). There was a significant association between the amount of money spent for food and the serum cholesterol.

With these findings it was anticipated that within both groups there would be a significant correlation between the serum cholesterol and the consumption of calories, protein or fat. However, such was not the case. Correlation factors between serum cholesterol and the consumption of calories, proteins and fats failed to show a significant association.

Interestingly, there was a significant association between the serum cholesterol and body weight and between serum cholesterol and a relative weight index expressed as the actual to ideal weight ratio. The rural group contained a lower proportion of overweight persons than the urban group, but the difference was not statistically significant. Indeed, the relationship between cholesterol and relative weight was significant within each of both groups but at a different regression line level. Specifically, for any relative weight, the serum cholesterol was higher for urban area veterans than for rural area veterans.

These data suggest that if there is a protection from atherosclerosis in the rural veteran, it is not due simply to the diet of these individuals. Socio-economic factors are relevant, undoubtedly, to the diet that these individuals consume, but they also affect other circumstances of their life such as their range of social customs and pressures, their transportation and communication facilities,

their opportunities for education and medical care and their range of physical activities.

There may be reason to suspect that the main effect of socio-economic factors may be on the overall nutritional-energy consumption balance rather than on dietary intake alone. Perhaps the protection that they may confer is due as much to the amount and quality of food ingested as to the way in which the energy is utilized, as determined by the physical and other activities performed within the circumstances of daily life.

It is hoped that some of the questions raised by this investigation may be answered by the wide-scope studies that are being carried out in Puerto Rico at the present time (8). It is also hoped that this investigation may serve as a basis of comparison for similar studies that may be done in the future as the socio-economic status of Puerto Rico continues to improve.

Elí A. Ramírez, MD, MSc (Int. Med.)

References

1. *García Palmieri, M. R., Feliberti, M., Costas, Jr., R., Benson, H., Blanton, J. H., and Aixala, R.:* Coronary heart disease mortality - a death certificate study. J. Chronic Dis., 18: 1317, 1965.
2. *Amadeo, J. A.:* A suggestion for improving the structure of the cardiac coronary circulatory system without surgical intervention, Amer. Heart J., 28: 699, 1944.
3. *Ramírez, E. A.:* Arteriosclerosis cardiaca, Bol. Asoc. Méd. P. Rico, 46: 466, 1964.
4. *Suárez, R. M.:* The incidence of heart disease in Puerto Rico, Amer. Heart J., 29: 339, 1945.
5. *Francisco, R.:* Personal communication to Suárez, R. M., Amer. Heart J., 29: 339, 1945.
6. *Vázquez Calzada, J. L., and R. de Morales, N.:* Las enfermedades del corazón en Puerto Rico 1913-1962, Departamento de Medicina Preventiva y Salud Pública, Escuela de Medicina, Universidad de Puerto Rico, Oct., 1963.
7. *Ramírez, E. A., García Pont, P. H.:* Relationship ot serum cholesterol to socioeconomic and dietary factors in Puerto Rican Veterans, Dis. Chest, 55: 197, 1969.
8. *García Palmieri, M. R.:* El programa de salud del corazón de Puerto Rico, (Editorial), Bol. Asoc. Méd. P. Rico, 57: 483, 1965.

CARTAS

El Boletín acepta para su publicación correspondencia que pudiera ser de interés general para la profesión médica.

Nota Histórica - Escuela de Medicina

Al Editor: Acabo de leer la Nota Histórica sobre nuestra Escuela de Medicina publicada por los doctores Sifontes y Asenjo en el número del Boletín de la AMPR correspondiente al mes de noviembre pasado. Reconociendo el valor que tiene la historia para la humanidad, siento gran satisfacción cada vez que aparecen en nuestro Boletín artículos que nos hablan del pasado. Es el relato histórico el medio del que se vale el hombre para conocer las épocas que no ha vivido. Pero hay veces que inadvertidamente la información que se ofrece no es lo completa que debiera ser.

Comprendo que en una "nota" tan corta como la publicada no se pueden cubrir todos los aspectos del tema. Sin embargo, me sorprende que ni siquiera se mencione a la Asociación Médica de Puerto Rico como factor participante y contribuyente a la creación y desarrollo de la Escuela de Medicina en un artículo donde se encuentra espacio hasta para hablar de sucesos ocurridos 50 años antes de establecerse la Escuela.

A continuación enumeraré algunos datos salientes en la vida de la AMPR que tuvieron que ver con la creación y el desarrollo de nuestra Escuela de Medicina:

1) 1942 - AMPR se manifiesta a favor del establecimiento de una Escuela de Medicina pero aclara que no debe ser una para formar profesionales de dudosa capacidad.
2) 1943 - Se crean comités para estudiar la posibilidad de establecer la escuela. Se encomienda al Dr. O. Costa Mandry, en un viaje que tiene que hacer a los Estados Unidos, visitar varias universidades con la intención de obtener información para crear una Escuela de Medicina en Puerto Rico.
3) 1944 - Resolución de la Cámara de Delegados de la AMPR expresándose ésta oficialmente a favor del establecimiento de la Escuela.
4) 1948 - La AMPR muy atinadamente interviene para evitar que se instituya la Escuela alrededor de un núcleo de médicos polacos de la Fundación Paderewski. La otra parte pretendió hacer ver al público que la AMPR se oponía a la creación de una Escuela de Medicina en P. R., cuando lo que se deseaba era que no se fuera a establecer de la noche a la mañana una Escuela que no reuniera los requisitos que se le exigen a una Grado A. Información solicitada de las autoridades médicas en Londres y Edimburgo en cuanto a la preparación de los hombres que integraban la Facultad de la escuela propuesta corroboró nuestras sospechas. Las autoridades universitarias, al hacer lo mismo más tarde independientemente, finalmente desistieron de la idea, justificándose así nuestra oposición en aquella época.
5) 1950 - 1955 - Se establece la Escuela de Medicina, se gradúa la primera clase, y se gana la merecida categoría Grado A gracias en parte a la cooperación de una Facultad que consistía en su enorme mayoría de miembros de la Asociación Médica de P. R. (me refiero a médicos) implicando así un endoso absoluto de dicha entidad.
6) 1961 - Por gestiones y mediación de la AMPR, (siendo presidente el doctor E. Pérez-Santiago) la casa Baxter dona el primer riñón artificial a la Escuela de Medicina.

No continúo porque ya la carta se está alargando demasiado. Sólo me resta felicitar a los autores Sifontes y Asenjo por la interesante reseña histórica que nos brindaron sobre la Escuela. Espero que en las futuras oca-

siones que tengan oportunidad de hablar sobre este tema recuerden que la AMPR se merece, por lo menos, una alusión.

Y nada más.

Atentamente,
José M. Torres-Gómez, MD

P. S. - 1) En la Fig. 5 está identificada la persona núm. 21 como el doctor Luis Adam-Nazario. Esto es incorrecto. La persona retratada es el doctor Alberto Adam, hoy cirujano cardiovascular.

Esta carta fue referida al doctor José E. Sifontes quien nos envía la siguiente respuesta:

Al Editor: Contesto su carta del 17 de abril pidiendo comentarios sobre la del doctor José M.Torres Gómez relativos a nuestro artículo Nota Histórica Escuela de Medicina de Puerto Rico.

Uno de nuestros propósitos al escribir esta breve nota fue estimular el tipo de información que nos da el doctor Torres Gómez; esperando que todos aquellos conocedores de datos importantes similares tengan la bondad de recordárnoslos. Esperamos que de esta forma podamos escribir en el futuro una historia de nuestra Escuela de Medicina en la cual se le dé crédito a todos aquellos merecedores del mismo.

Nuestro interés va más allá de la Escuela de Medicina y estamos tratando de coleccionar datos, publicaciones y fotografías representativos de la historia de la medicina en Puerto Rico. Esperamos en un futuro no lejano contar con suficiente material para desarrollar una sección de historia de las Ciencias de la Salud en Puerto Rico en la Biblioteca del Recinto de Ciencias Médicas, que le haga justicia a todos los que en una forma u otra han contribuído significativamente a la salud del pueblo de Puerto Rico.

Cordialmente,
José E. Sifontes, MD
Decano

Claudicación Intermitente

Al Editor: En el Boletín de la Asociación Médica de Puerto Rico, correspondiente al mes de enero de 1969, en la sección de Preguntas y Respuestas, aparece una pregunta sobre el tratamiento de un paciente que presenta síntomas de claudicación intermitente. Se le contesta que probablemente cirugía no ayudaría al paciente. No se hace mención de arteriografías.

En la evaluación del paciente con claudicación intermitente, la arteriografía es esencial para decidir el tratamiento. Sin una arteriografía adecuada no se puede evaluar un paciente con insuficiencia arterial en las extremidades. En otras palabras, todo paciente con insuficiencia arterial, no importa el sitio envuelto, debe ser evaluado con una arteriografía adecuada.

Quiero aprovechar para felicitar a la Junta Editora por la calidad del Boletín, por lo variado de los tópicos y las diferentes secciones que incluye.

Cordialmente,
José R. Pérez-Anzalota, MD

Al Editor: El éxito del tratamiento de enfermedad vascular periférica depende en mi opinión de tres factores: diagnóstico exacto, juicio quirúrgico apropiado y atención a detalle en la técnica quirúrgica. La arteriografía puede considerarse piedra angular en el diagnóstico de extremidades sin pulso, y es esencial para determinar cómo se restablecerá la circulación. Puede irse más lejos y exigir un detallado examen vascular y arteriograma, si es necesario, durante la evaluación preoperatoria de cualquier paciente cuya extremidad esté bajo peligro de amputación, ya que en muchos casos la reconstrucción vascular es posible sea por injertos de vena o de Dacron.

Cuando la enfermedad oclusiva afecta sólo las arterias pequeñas la reconstrucción vascular no es posible, y este

diagnóstico generalmente se establece sin necesidad de arteriografía a base del historial y de un examen físico minucioso, puntales de buena práctica de la medicina. En estos casos la arteriografía puede ser útil para aclarar dudas. Aunque controversial, simpatectomía lumbar debe considerarse para estos pacientes.

Jorge O. Just-Viera, MD

CONVENCION SEMI-ANUAL

JULIO 4 – 6, 1969



HOTEL PALMARINAS, ISABELA

ACTUALIDADES MEDICAS

Behavioral Factors in Automobile Driver Fatalities

There are, in fact, very few automobile "accidents," according to a Baylor University psychiatrist, who said that many would more appropriately be called "inevitabilities."

Reporting on a study to determine the role of behavioral factors in driver fatalities, Dr. Philip N. Bohnert said that analysis of the "pre-crash" state showed depression to be the most common condition — 40 percent of the group — with more than 1/3 of this sub-group showing serious suicidal feelings. One-third of the victims died because of uncontrolled anger which was translated into over aggresive driving, with some spectacular accidents resulting, according to Dr. Bohnert, who made his observations at the annual meeting of the Industrial Medical Association being held this week (April 21-24) in Houston, Tex.

Psychiatric and demographic data, as well as information regarding driving habits and drinking history, were obtained from all possible sources, including survivors of the driver fatalities, it was explained, and the data were compared with that obtained from a matched control group. Such obvious and severe impairment was seen in four out of five of the victims that a psychiatric diagnosis was clearly warranted, it was indicated by Dr. Bohnert, who added that 25 percent of the victims were anti-social personalities (sociopaths); 60 percent were alcoholics; and 20 percent showed an unexpected pattern of extreme submissiveness until their final murderous explosion.

Another sobering statistic revealed was that three out of every four drivers were intoxicated, usually severely, and that half of these drinking drivers showed characteristics which augured better prospects for rehabilitation or treatment than the typical alcoholic. The danger presented by these drivers alone makes a forceful case for the value of being a "defensive driver," Dr. Bohnert concluded.

Reprinted with permission of the Industrial Medical Association, Chicago, Illinois.

Rubella Virus Vaccine

Recommendation of the Public Health Service Advisory Committee on Immunization Practices

The Public Health Service Advisory Committee on Immunization Practices developed the following recommendation in close collaboration with the Committee on the Control of Infectious Diseases, American Academy of Pediatrics which endorses the recommendation.

PRELICENSING STATEMENT ON RUBELLA VIRUS VACCINE

Introduction

The live, attenuated rubella virus vaccine* soon to become available appears to be a highly effective immunizing agent and the first suitable method of controlling rubella.

Rubella is generally a mild illness, but if the infection is acquired by a woman in the early months of pregnancy, it poses a direct hazard to the fetus. Preventing infection of the fetus is the principal objective of rubella control. This can best be achieved by eliminating the transmission of virus among children, who are the major source of infection for susceptible pregnant women. Furthermore, the live, attenuated rubella virus vaccine is safe and protective for children, but not for pregnant women because of an undetermined risk of the vaccine virus for the fetus.

Rubella

Rubella is one of the common childhood exanthems. Most cases occur in school-age children particularly during the winter and spring. By early adulthood, approximately 80 to 90 percent of individuals in the United States have serological evidence of immunity.

Rubella is clinically variable, and its common features, such as post-auricular and sub-occipital lymphadenopathy and transient erythematous rash, are often overlooked or misdiagnosed. A mild febrile illness

---

**Its official name is Rubella Virus Vaccine, Live.*

may not be recognizable as rubella, and moreover, subclinical infection occurs, which further decreases the reliability of clinical history.

Complications of rubella are rare in children, but in adults, particularly women, the illness is commonly accompanied by transient polyarthritis. Far more important is the frequent occurrence of fetal abnormalities when a woman acquires rubella in the first trimester of pregnancy.

Rubella Immunity

Immunity following rubella appears to be long lasting, even after mild illness or clinically inapparent infection. The only reliable evidence of immunity is a positive serological test. However, because of the variation among reagents and technical procedures, results of serological tests should be accepted only from laboratories of recognized competency that regularly perform these tests.

At the present time, the hemagglutination-inhibition (HI) antibody determination is particularly useful for evaluating immunity. It is a rapid and sensitive procedure. The complement fixation (CF) and other serological tests are less useful.

Live Rubella Virus Vaccine

Live rubella virus vaccine is prepared in cell culture of avian or mammalian tissues. It is administered as a single subcutaneous injection. Although vaccinees shed virus from the pharynx at times for 2 or more weeks after vaccination, there is no clear evidence of communicability. Approximately 95 percent of susceptible vaccinees develop antibodies, but titers are lower than those observed following natural rubella infection. Recent investigations have shown that vaccination affords protection against illness following either natural exposure or artificial challenge.

Antibody levels have declined very little during the three-year period of observation of children who were among the first to be immunized with rubella vaccine. Long-term protection is likely, but its exact duration can be established only by continued observation.

More than 30,000 susceptible children have received live rubella virus vaccine in field investigations, with almost no untoward reactions. Only rarely has transient arthralgia or evanescent rash been reported in children.

Many susceptible women have had lymphadenopathy, arthralgia, and transient arthritis beginning 2 to 4 weeks after vaccination; however, fever, rash, and other features of naturally acquired rubella have occurred less commonly. Not enough susceptible men have been vaccinated to show whether they experience comparable reactions as frequently as women.

Recommendations for Vaccine Use

Live rubella virus vaccine is recommended for boys and girls between the age of one year and puberty. Vaccine should not be administered to infants less than one year old because of possible interference from persisting maternal rubella antibody.

Children in kindergarten and the early grades of elementary school deserve initial priority for vaccination because they are commonly the major source of virus dissemination in the community. A history of rubella illness is usually not reliable enough to exclude children from immunization.

Vaccination of adolescent or adult males is of much lower priority because so few are susceptible. However, the vaccine may be useful in preventing or controlling outbreaks of rubella in circumscribed population groups.

Pregnant women should not be given live rubella virus vaccine. It is not known to what extent infection of the fetus with attenuated virus might take place following vaccination, or whether damage to the fetus could result. Therefore, *routine* immunization of adolescent girls and adult women should *not* be undertaken because of the danger of inadvertently administering vaccine before pregnancy becomes evident.

Women of child-bearing age may be considered for vaccination only when the possibility of pregnancy in the following 2 months is essentially nil; each case must be considered individually. This cautious approach to vaccinating post-pubertal females is indicated for two reasons: First, because of the theoretical risk of vaccination in pregnancy; and secondly, because significant congenital anomalies occur regularly in approximately 3 percent of all births, and their fortuitous appearance after vaccine had been given during pregnancy could lead to serious misinterpretation.

If vaccination of a woman of child-bearing age is contemplated, the following steps are indicated:

Optimally, the woman should be tested for susceptibility to rubella by the HI test (See **Rubella Immunity**).

If immune, she should be assured that vaccination is unnecessary.

If susceptible, she may be vaccinated only if she understands that it is imperative for her to avoid becoming pregnant for the following 2 months. (To ensure this, a medically-acceptable method for pregnancy prevention should be followed. This precaution also applies to women in the immediate post-partum period). Additionally, she should be informed of the frequent occurrence of self-limited arthralgia and possible arthritis beginning 2 to 4 weeks after vaccination.

Use of Vaccine after Exposure to Natural Infection

There is no evidence that live rubella virus vaccine given after exposure will prevent illness. There is, however, no contraindication to vaccinating children already exposed to natural rubella. For women exposed to rubella, the concepts listed previously apply.

Precautions in Using Live Rubella Virus Vaccine

Pregnancy: Live rubella virus vaccine is contraindicated. (See **Recommendations for Vaccine Use.**)

Altered Immune State: Attenuated rubella virus infection might be potentiated by severe underlying diseases, such as leukemia, lymphoma, or generalized malignancy, and when resistance has been lowered by therapy with steroid, alkylating drugs, antimetabolites, or radiation. Vaccination of such patients should be avoided.

Severe Febrile Illness: Vaccination should be postponed until the patient has recovered.

Hypersensitivity of Vaccine Components: Rubella vaccine is produced in cell culture. Care should be exercised in administering vaccine to persons with known hypersensitivity to the species from which the cells were derived (indicated in the labeling). The vaccine contains a small amount of neomycin and should not be given to individuals known to be sensitive to this antibiotic.

Simultaneous Administration of Live Rubella Virus Vaccine and Other Live Virus Vaccines

Simultaneous administration of live rubella virus vaccine and other live virus vaccines should be deferred until results of controlled clinical investigations are available. Until then, it is recommended that rubella vaccination be separated by at least 1 month from administration of other live virus vaccines.

Surveillance

Careful surveillance of rubella infection is particularly important with an effective vaccine in use. Emphasis should be placed upon improved diagnosis and reporting of rubella, of the congenital rubella syndrome, and of complications of the disease. Competent laboratory investigation of all infants with birth defects suspected of being due to rubella is essential. It will likewise be important to observe patterns of vaccine use and determine their effectiveness.

Reprinted with permission of the American Academy of Pediatrics Newsletter Supplement - April 15, 1969.

NOTICIAS

RESOLUCIONES APROBADAS POR LA CAMARA DE DELEGADOS EN SU PRIMERA REUNION DEL 1969.

La Cámara de Delegados celebró su Primera Reunión Ordinaria del año 1969 el pasado 19 de abril en el Hotel Mayaguez Hilton, Mayaguez. En esta reunión se aprobaron las siguientes resoluciones:

VII-68-9: *"Para instruir al Comité de Etica a designar normas que controlen la publicación en diarios, revistas y otros medios de comunicación, de nombres y fotografías de médicos así como de la clase médica".*

El Comité de Etica rindió el siguiente informe, el cual fue aprobado por la Cámara:

La Sección 5 de los Principios de Etica de la Asociación Médica de Puerto Rico clara y específicamente dice "El médico no debe solicitar pacientes". Anunciarse, por parte de un médico, es solicitar pacientes y eso no es ético.

Obviamente tiene que existir el medio ético, discreto, formal y prudente de hacer un anuncio profesional. Los anuncios de apertura de oficina o de cambio de domicilio ya han sido reglamentados por la Cámara de Delegados de la Asociación Médica de Puerto Rico. Igualmente existe reglamentación en el uso de rótulos en los edificios de oficina o residencia de médicos. Bajo condiciones iguales es permisible que aparezca el nombre de un médico en directorio tal como la Guía Telefónica. Sin embargo, se considera no ético la inserción de su nombre en directorios comerciales que se ponen a la venta pública. La discreción y el buen gusto deben ser siempre guías para el profesional que tiene que hacer llegar al público información de esta naturaleza.

Cualquier médico de quien se solicite una entrevista para publicación en la prensa laica, debe inmediatamente comunicarse con el Consejo Judicial y Administrativo y en caso de duda sobre la cuestión ética debe consultarse al Comité de Etica antes de suplir la información.

La Sección 10, párrafo 6 de los Principios de Etica Médica estipula que los médicos en práctica activa no deben escribir columnas que aparezcan en la prensa laica. Esta misma restricción no existe para aquellos de nuestros colegas que se han retirado de la práctica activa. La razón es muy obvia y no amerita ampliación. Esta restricción es extensiva a columnistas aún cuando el parte de prensa sea auspiciada por nuestra Asociación Médica. Si el deseo es de informar al público, el estar suscrito exclusivamente por el nombre de nuestra Asociación les confiere la autoridad suficiente. Si la omisión del nombre del articulista es razón para que no haya autores voluntarios le da más peso de razón a la regla que lo prohibe.

Se reconoce la necesidad de mantener al público informado y no hay duda que toda la información que es para el consumo del público puede darse, pero siempre en una forma impersonal, sin que aparezca el nombre de ningún médico y mucho menos su fotografía. El uso de la frase "un portavoz médico informa" o "una fuente autorizada informa" se recomienda como la forma más efectiva de darle autenticidad y credibilidad a la fuente informativa sin que se cite a un médico en particular.

Con el propósito de proteger al médico que rechaza la publicidad y fiscalizar al que la busca por cualquier medio, es que existen nuestros PRINCIPIOS DE ETICA MEDICA. Para interpretarlos está el Comité de Etica y para hacerlos cumplir está la Junta de Directores. La Sección 4 de nuestros Principios de Etica Médica claramente dice "La profesión médica debe salvaguardar tanto al público como a sí misma, de aquellos médicos de dudosa conducta moral o competencia médica. Los médicos deben obedecer todas las leyes, proteger la dignidad y honor de la profesión y aceptar las disciplinas auto-impuestas. Deben denunciar sin dudas la conducta ilegal o falta de ética de cualquiera otro miembro de la profesión."

IV-69-1: *"Establecimiento sistema Evaluación Planes de Servicios Médicos Prepagados".*

Por esta resolución se aprueba que el Consejo de Servicios Médicos establezca un sistema de evaluación de planes de servicios médicos prepagados para mayor orientación de la clase médica y de la comunidad en general.

IV-69-4: *"Directorio Médico de Puerto Rico".*

Por esta resolución la Cámara ofrece su más decidida cooperación y apoyo a la distribución del Directorio Médico de Puerto Rico.

IV-69-5: *"Honorarios Usuales y Acostumbrados".*

En esta resolución se señala que la operación del Plan Medicare exige para el pago de servicios médicos, honorarios usuales y acostumbrados; por lo que se considera que debe haber un mayor acercamiento en forma oficial entre el Agente Fiscal Intermediario y los miembros de nuestra Asociación. La Cámara acordó recomendar al Consejo de Servicios Médicos la creación de un Comité de Enlace para atender la implementación de dicho programa.

IV-69-6: *"Médicos Distinguidos".*

La Cámara aprobó felicitar a los compañeros doctores Ernesto Colón Yordán y Carlos Náter Ojeda por haber sido exaltados a posiciones públicas al servicio del pueblo.

IV-69-7: *"Departamento de Medicina de Familia"*.

Se aprobó recomendar a la Escuela de Medicina de la UPR crear un Departamento de Medicina de Familia para el entrenamiento de los médicos que en el futuro deseen dedicarse a esta nueva especialidad.

IV-69-11: *"La Especialidad en Medicina de Familia"*.

La Cámara aprobó que se felicite a los médicos generalistas por el gran logro obtenido y estimularlos para que satisfagan los requisitos de esta especialidad.

IV-69-12: *"Cursos Preparatorios"*.

Debido a que la aprobación de la especialidad de Medicina de Familia requiere presentarse a una serie de exámenes, la Cámara aprobó recomendar al Consejo de Educación Médica la implementación de cursos preparatorios para dichos exámenes.

IV-69-14: *"Para que se enmiende el P. de la C. Núm. 42"*.

Por esta resolución la Cámara de Delegados aprueba respaldar las recomendaciones presentadas por la Asociación de Dueños de Farmacias para que se incluya en el P. de la C. Núm. 42 un anexo, para que el despacho de las recetas médicas se provea a los pacientes en la misma forma y manera que se propone para los servicios médico-hospitalarios, o sea, a través de la farmacia independiente, dando al paciente libertad para escoger la farmacia de su preferencia.

IV-69-15: *"Para Designar un Representante Oficial de la AMPR ante el Comité de Nutrición de Puerto Rico"*.

Se aprueba autorizar al Presidente de la AMPR a designar anualmente un representante oficial de la AMPR ante el Comité de Nutrición de P. R.

IV-69-16: *"Para que se Legisle sobre la prescripción de Dietas en Puerto Rico"*.

Por esta resolución la Cámara aprobó:

1. Requerir del Consejo de Política Pública de la Asociación Médica de Puerto Rico que investigue la posibilidad de crear legislación estableciendo que la prescripción de regímenes dietéticos constituye una práctica de la medicina;

2. Que en dicha legislación se estipule que todo régimen dietético debe ser prescrito por un médico autorizado para ejercer la profesión en Puerto Rico y calculado e interpretado por una dietista profesional.

3. Que el Consejo de Política Pública se comunique con la Asociación Dietética de Puerto Rico para la implementación coordinada de esta resolución.

IV-69-19: *"Promoción de Ayuda a Junta Examinadora de Médicos"*.

Debido a que la ley actual exige de la Junta Examinadora de Médicos múltiples responsabilidades sin proveerle personal suficiente para el desempeño adecuado de dichas responsabilidades, y que la falta en la realización de sus funciones, por los motivos descritos, podría reflejarse negativamente en la salud del pueblo de Puerto Rico; la Cámara aprobó encomendar a nuestro Presidente y a su Junta de Directores que por los medios que estén a su alcance asesore a nuestra Legislatura Estatal para que emita legislación que logre eliminar estas deficiencias.

IV-69-27: *"Endoso al P. de la C. Núm. 90"*.

La Cámara resolvió reafirmar su política pública endosando el Proyecto de la Cámara de Representantes del Estado Libre Asociado de Puerto Rico Núm. 90 que solicita se incluyan entre los beneficios de salud a los empleados públicos servicios para condiciones mentales.

IV-69-28: *"Para Revisar la Ley Núm. 22 - Práctica de la Medicina"*.

Se ordena al Consejo de Política Pública de la AMPR realizar un estudio de la práctica de la medicina en Puerto Rico y preparar enmiendas más estrictas a dicha ley para sancionar aquellos que practican la medicina ilegalmente.

IV-69-29: *"Integración Cruz Azul - SSS"*.

Se autoriza al Consejo de Servicios Médicos a entrar en conversaciones con la Cruz Azul de Puerto Rico, SSS y la Asociación de Hospitales de Puerto Rico para llevar a cabo las gestiones necesarias para brindar servicios hospitalarios y médico-quirúrgicos con la mejor utilización posible.

IV-69-31: *"Reconocimiento Asociación de Mujeres Médicas en Puerto Rico"*.

La Cámara de Delegados aprobó esta resolución por lo que se reconoce a esta Asociación y le ofrece su apoyo en sus funciones.

IV-69-32: *"Honorarios Usuales, Acostumbrados y Razonables"*.

A continuación reproducimos esta resolución tal y como fue aprobada:

POR CUANTO: En varios de los planes de seguro de salud prepagado voluntario se especifica que debe pagarse el honorario usual, acostumbrado y razonable;

POR CUANTO: Para la mejor implementación de esto debe establecerse una definición de estos términos como sigue:

"Usual" - Se define como el honorario de un médico por un servicio rendido en su práctica privada.

"Acostumbrado" - Se define como los honorarios de médicos con entrenamiento y experiencia similar por un mismo servicio dentro de un área geográfica y de la misma condición socio-económica.

"Razonable" - Es el honorario que está de acuerdo con las definiciones anteriores o que en la opinión del Comité de Utilización de la Asociación Médica de Puerto Rico esté justificado dentro de circunstancias especiales de un caso en particular.

POR TANTO: Se resuelve por esta Hon. Cámara de Delegados que estos términos según aquí definidos sean los usados en cualquier contrato o ley que a servicios de salud se refiera, y se envíen a las compañías de seguros en inglés y español.

IV-69-33: *"Reafirmación Resolución IV-67-20"*.

La Cámara de Delegados acordó aprobar esta resolución

que constituye una reafirmación de su Resolución IV-67-20 - "Declaración de Principios sobre Reducción de Honorarios", ya que la misma ayudará a la implementación de los programas de integración de los servicios de salud propuestos por nuestras Cámaras Legislativas.

IV-69-35: *"Honorarios Duales y los Seguros de Salud".*

La Cámara de Delegados aprobó que se adopte como política de la AMPR la abolición del concepto de honorarios duales y fijos y que se acepte el concepto de honorarios usuales y acostumbrados en la comunidad como método de retribución de pagos por servicios prestados.

IV-69-36: *"Alza en Primas de Seguros por Responsabilidad Profesional".*

Por esta resolución se instruye a la Junta de Directores para que a través del Consejo de Política Pública y otros medios a su alcance, gestione una reducción en las tarifas de los seguros médicos por responsabilidad profesional, ya que esta alza puede causar una cubierta indebida por los médicos de Puerto Rico.

IV-69-38: *"Creación de Nueva Escuela de Medicina".*

Se aprobó esta resolución que solicitaba de la Cámara se reafirme públicamente en su Resolución XI-68-10 (establece que la AMPR, a través de su Junta de Directores, lleve a cabo las gestiones necesarias a fin de que se establezcan en nuestro país nuevas Escuelas de Medicina y que se mejoren y amplíen las facilidades de la Escuela de Medicina de la UPR), y que la AMPR, a través de su Junta de Directores y de su Consejo de Política Pública, respalde públicamente y exhorte a las Cámaras Legislativas de Puerto Rico para que las resoluciones asignando fondos para estudios de viabilidad de una escuela de medicina en Ponce sean aprobadas a la mayor brevedad posible.

La Cámara aprobó además el Proyecto de Constitución y Reglamento de la Sociedad Médica del Distrito Norte, así como una enmienda propuesta por la Sección de Pediatría de la AMPR a su Reglamento con el objeto de que dicha Sección pueda establecer subsecciones de acuerdo a las subespecialidades conocidas.

Programa Preliminar Convención Semianual

Viernes, 4 de julio
Hotel Palmarinas

Presidirán: Dres. *José Abreu Elías y Jorge O. Just Viera*

9:00 a.m. "Enzyme Studies in Muscular Dystrophy"
Louis Cohen, MD

9:30 a.m. "The Effect of Estrogenic Hormones on Immune Phenomena Particularly Related to the Thymus"
John S. Thompson, MD

10:00 a.m. "Malignant Small Bowell Tumors"
A. S. Casanova Díaz, MD
Horacio Leyva, MD

10:30 a.m. "Recent Advances in the Clinical Use of Serum LDH Isozymes"
Louis Cohen, MD

11:00 a.m. "The Histocompatibility Typing for Several Transplantations Groups in the City of Chicago"
John S. Thompson, MD

11:30 a.m. "The Captive Psychiatrist"
John L. Simon, MD

11:45 a.m. *COFFEE*

12:00 m. Panel: "Trasplantes Renales"
Participantes:
Roberto Rodríguez, MD, Moderador
Héctor F. Rodríguez, MD "Trasplantes Renales: "Experiencias Personales"
Sergio López Lotti, MD "Aspectos Quirúrgicos de Trasplantes Renales"
Osvaldo Ramírez Muxó, MD "Diálisis o Trasplantes: ¿Para Quién? "
Francisco E. Oliveras, MD "Importancia de Tipificación de Tejidos en Trasplantes"

2:00 p. m. Almuerzo - Cortesía de Seguros de Servicios de Salud

3:30 p.m. Reunión Cámara de Delegados

Sábado, 5 de julio
Hotel Palmarinas

Presidirán: Dres. *Joaquín Soler Bechara, MD y César Rosa Febles*

8:45 a.m. "Care of the Urinary Tract in the Paraplegic"
Tomás Acevedo, MD

9:00 a. m. "A Simplistic Approach to the Determination of the Mean Electrical Axis of the QRS"
Antonio Grillo, MD
Pablo Altieri, MD

9:15 a.m. "Fluid Therapy in Children"
Lewis A. Barness, MD

9:45 a.m. "Hepatic Lobectomy for a Malignant Mesenchymal Tumor"
Brígido Berríos Pagán, MD
Víctor Hernández, MD
Leonardo Collazo, MD
A. S. Casanova Díaz, MD

10:00 a.m. "Therapeutic Applications of Bronchopulmonary Lavage"
Jorge O. Just Viera, MD

10:15 a.m. "Pectus Excavatum"
Jorge O. Just Viera, MD

10:30 a.m. "Diagnosis of Inborn Errors of Metabolism"
Lewis A. Barness, MD

11:00 a.m. "Pulmonary Artery Banding: Review of 50 Cases 8-10 Years Follow-Up"
Amalia Martínez Picó, MD
Mercedes Vega Vidal, MD
Agustín Muñoz Santiago, MD

11:15 a.m. *COFFEE*

11:30 a.m. "Trends in Professional Malpractice: How they Affect Physicians"
Lcdo. Samuel E. Polanco

12:00 m. Panel: "Salud y Contaminación Ambiental en Puerto Rico"

Participantes:

José E. Sifontes, MD - Moderador
Máximo Cerame Vivas, PhD "Contaminación del Agua"
Angel A. Colón, MD, PhD "Contaminación Atmosférica"
Nelson Biaggi, PhD "Rol de la Escuela de Medicina en la Contaminación Ambiental"
Hon. Ernesto Colón Yordán, MD "El Departamento de Salud y la Contaminación Ambiental"

2:00 p.m. Almuerzo - Cortesía de Cruz Azul de Puerto Rico

3:30 p.m. Reunión Cámara de Delegados

Actividades Sociales

Jueves

Registro

7:00 p.m. Coctel de Bienvenida - Cortesía de Hoechst Pharmaceuticals - Música: Orquesta Ciencia y Melodía (Distrito Occidental)

Viernes

9:00 a.m. "Sightseeing" para las esposas e hijos por los lugares históricos y pintorescos del área.

2:00 p.m. Almuerzo cortesía de Seguros de Servicio de Salud

7:00 p.m. Coctel cortesía de Laboratorios Strassemburg (Sr. Tomás Carrillo, Representante)

9:00 p.m. Comida-Buffet cortesía del Distrito Norte. Música Brava por el Conjunto Típico Isabelino.

Sábado

2:00 p.m. Almuerzo cortesía de la Cruz Azul de Puerto Rico.

9:00 p.m. *Banquete-Baile - Orquestas Happy Hills y Ciencia y Melodía.

**El consumo de bebidas durante el Banquete-Baile será por cuenta de cada asistente.*

Actividades del Mes

A continuación informamos las actividades que han sido reportadas durante el mes de junio: "Mes Contra la Parasitosis Intestinal":

Junio 3- Reunión Comité Relaciones Públicas del Distrito Este - AMPR - 8:00 p. m.
Junio 4- Reunión Sección ENT - AMPR - 7:30 p. m.
Junio 4- Reunión Distrito Este - AMPR - 8:00 p. m.
Junio 6- Reunión Junta Editora del Boletín - AMPR - 5:00 p. m.
Junio 10- Reunión Consejo Científico - AMPR - 6:00 p. m.
Junio 10- Reunión Consejo Relaciones Públicas - AMPR - 8:00 p. m.
Junio 10- Reunión Asoc. de Asistentes Médicos - AMPR - 8:00 p. m.
Junio 11- Reunión Consejo Servicios Médicos - AMPR - 8:00 p. m.
Junio 12- Reunión Comité de Finanzas de la Cámara de Delegados - AMPR - 7:30 p. m.
Junio 13- Convención Semi Anual Distrito Este - Hotel El
Junio 14- Convención Semi Anual Dist. Este - Hotel El Conquistador, Fajardo, P. R.
Junio 14- Reunión Directiva y Delegados Distrito Este - Hotel El Conquistador, Fajardo, P. R. - 11:00 a. m.
Junio 14- Reunión Junta Directores - AMPR - Hotel El Conquistador, Fajardo, P. R., 2:00 p. m.
Junio 15- Convención Semi Anual Dist. Este - Hotel El Conquistador, Fajardo, P. R.
Junio 17- Reunión Consejo Política Pública - AMPR - 8:00 p. m.
Junio 18- Seminario Enfermedades Contagiosas e Inmunizaciones ofrecido por el C. D. C. - Hospital Municipal - 8:00 a. m.
Junio 18- Coctel Sección de Pediatría - AMPR - 8:00 p. m.
Junio 19- Seminario Enfermedades Contagiosas e Inmunizaciones ofrecido por el C. D. C. - Hospital Universitario - 8:00 a. m.
Junio 25- Recepción-Coctel Alcalde del Distrito Este - Auspiciado por Sociedad Médica Distrito Este - AMPR - 6:00 p. m.
Junio 26- Reunión Consejo Judicial y Administrativo - AMPR- 8:00 p. m.
Junio 26- Reunión Consejo Salud Pública - AMPR - 8:00 p. m.

Libros Nuevos Recibidos en la Biblioteca del Departamento de Salud

ANATOMIA

Pearce, Evelin - Manual de Anatomía y Fisiología. Ed. Jims, 1964. 446p.

ADMINISTRACION PUBLICA

Martin, Roscoe C. - Administración Pública. México, Herrero, 1967. 427p.

COMUNICACION ESCRITA

Cerezo de Ponce, E. y Carrillo de Carle Ricarda - La Comunicación Escrita. Río Piedras, Ed. Edil, 1968, 166p.

GOBIERNO (MUNICIPAL)

Córdova, Efrén - Curso de Gobierno Municipal. Río Piedras, Ed. Universitaria, 1964. 419p.

GRAMATICA

Pérez-Rioja, J. A. - Gramática de la Lengua Española. 6ta. Ed. Madrid, Ed. Tecnos, c1967. 521p.

Ragucci, Rodolfo M. - El Habla de mi Tierra. 27 Ed. Buenos Aires, Ed. Don Bosco, c1967. 881p.

INFORMES (PREPARACION DE)

García de Serrano, Irma - Manual para la Preparación de Informes y Tesis. Río Piedras, Ed. Universitaria, 1967. 239p.

NUTRICION

Roberts, Lydia J. - The Doña Elena Project. Río Piedras, Universidad de Puerto Rico, 1963. 111p.

ODONTOLOGIA

Dillie, J. M. - Drug Therapy for Dentists. Chicago, Year Book Publishers Inc., 1963. 228p.

PROCEDIMIENTO PARLAMENTARIO

Bothwell, Reece B. - Manual de Procedimiento Parlamentario. 3 ed. Río Piedras, Ed. Universitaria, 1964. 215p.

RELACIONES PUBLICAS

Ettinger, Karl E. - Investigación y Relaciones Públicas. 3 ed. Madrid, Herrero, 1967. 78p.

Llera, Agustín de la y Luis Hard Leeb - Las Relaciones Públicas en la Empresa Moderna. México, Ed. Galaxia, 1958. 220p.

VACUNACION (PRODUCCION)

U. S. Department of Health, Education, and Welfare. - *Public Health Service. National Cancer Institute.* - Cell Cultures for Virus Vaccine Production. Washington, D. C., G. P. O., 1968, 608p. (National Cancer Institute Monograph No. 29).

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el número de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), c iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

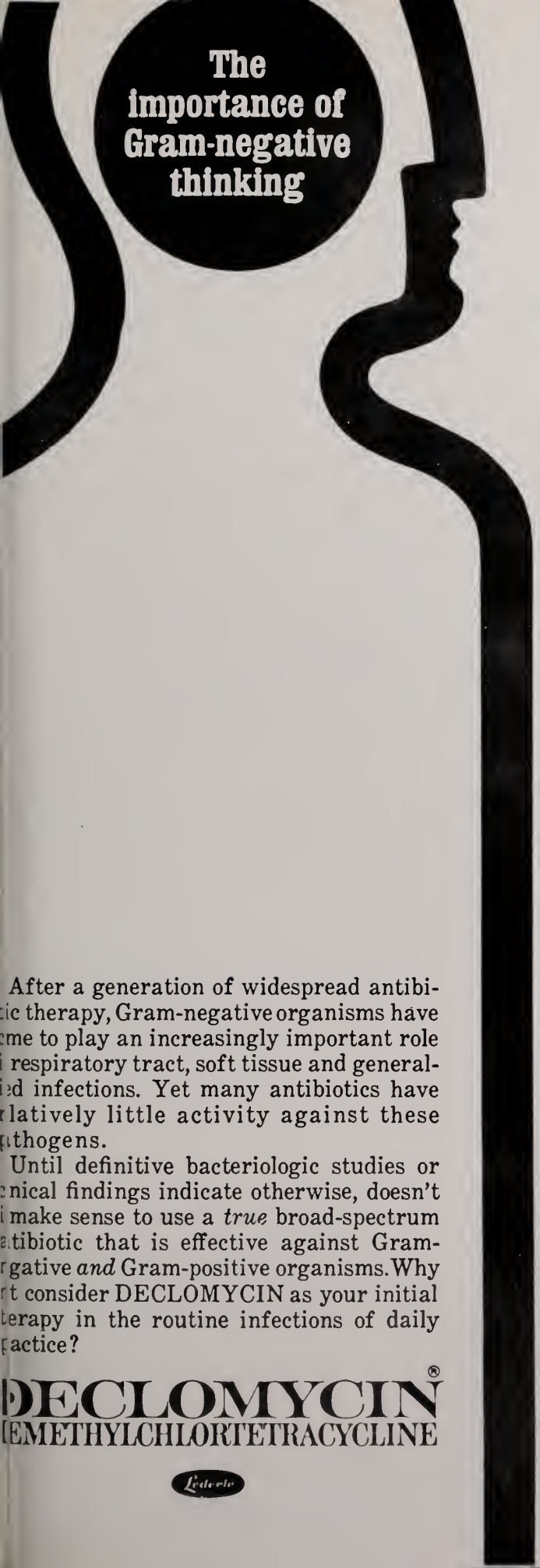
Alquilo 2 locales propios para especialistas medicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

Se alquila local segundo piso, para médicos - Más de 1,000 pies cuadrados - piso terrazo - tres cuartos - dos baños; luz, agua y parking incluídos. A varios minutos del Hospital del Maestro, Centro Médico y Auxilio Mutuo. Para más información, llamar al Dr. Cuevas, teléfonos 767-1004 o 764 -226.

Se alquila local para dispensario médico - Tiene tres oficinas - Teléfono - Ave. Comercial Lomas Verdes. Para más información llamar al teléfono 767-5095.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pila Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras Están semiequipadas. Sitio céntrico próximo a las calle principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas Apartado 20267, Río Piedras, P. R., Teléfono 766-7398



After a generation of widespread antibiotic therapy, Gram-negative organisms have come to play an increasingly important role in respiratory tract, soft tissue and generalized infections. Yet many antibiotics have relatively little activity against these pathogens.

Until definitive bacteriologic studies or clinical findings indicate otherwise, doesn't it make sense to use a *true* broad-spectrum antibiotic that is effective against Gram-negative *and* Gram-positive organisms. Why not consider DECLOMYCIN as your initial therapy in the routine infections of daily practice?

DECLOMYCIN®
DEMETHYLCHLORTETRACYCLINE

Lederle

For a wide range of everyday infections—respiratory, urinary tract and others—in the young and aged—the acutely or chronically ill.

True broad spectrum

DECLOMYCIN Demethylchlortetracycline should be equally or more effective than other tetracyclines when the offending organisms are tetracycline-sensitive.

Contraindication: History of hypersensitivity to demethylchlortetracycline.

Warning—In renal impairment, usual doses may lead to excessive accumulation and liver toxicity. Under such conditions, lower than usual doses are indicated, and, if therapy is prolonged, serum level determinations may be advisable. A photodynamic reaction to natural or artificial sunlight has been observed. Small amounts of drug and short exposure may produce an exaggerated sunburn reaction which may range from erythema to severe skin manifestations. In a smaller proportion, photoallergic reactions have been reported. Patients should avoid direct exposure to sunlight and discontinue drug at the first evidence of skin discomfort. Necessary subsequent courses of treatment with tetracyclines should be carefully observed.

Precautions—Overgrowth of nonsusceptible organisms may occur. Constant observation is essential. If new infections appear, appropriate measures should be taken. In infants, increased intracranial pressure with bulging fontanels has been observed. All signs and symptoms have disappeared rapidly upon cessation of treatment.

Side Effects—Gastrointestinal system—anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. Skin—maculopapular and erythematous rashes. A rare case of exfoliative dermatitis has been reported. Photosensitivity; onycholysis and discoloration of the nails (rare). Kidney—rise in BUN, apparently dose related. Hypersensitivity reactions—urticaria, angioneurotic edema, anaphylaxis. Teeth — dental staining (yellow-brown) in children of mothers given this drug during the latter half of pregnancy, and in children given the drug during the neonatal period, infancy and early childhood. Enamel hypoplasia has been seen in a few children. If adverse reaction or idiosyncrasy occurs discontinue medication and institute appropriate therapy.

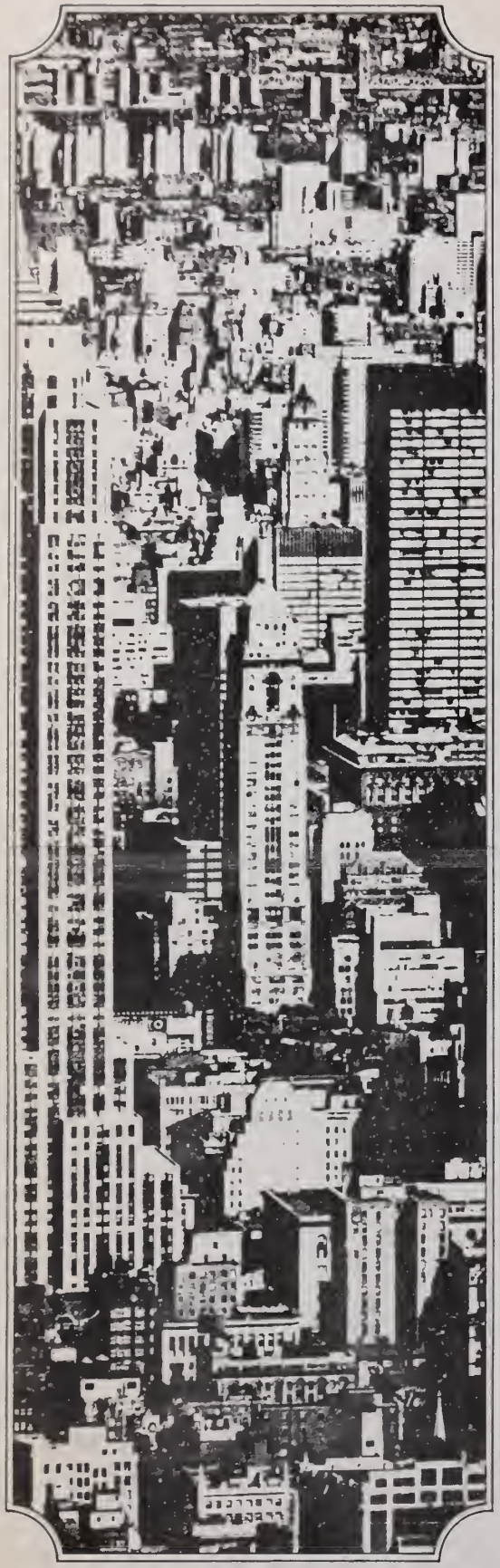
Average Adult Daily Dosage: 150 mg q.i.d. or 300 mg b.i.d. Should be given 1 hour before or 2 hours after meals, since absorption is impaired by the concomitant administration of high calcium content drugs, foods and some dairy products. Treatment of streptococcal infections should continue for 10 days, even though symptoms have subsided.

Capsules: 150 mg; **Tablets:** film coated, 300 mg, 150 mg, and 75 mg of demethylchlortetracycline HCl.

DECLOMYCIN®
DEMETHYLCHLORTETRACYCLINE

LEDERLE LABORATORIES, A Division of
American Cyanamid Company, Pearl River, New York

Lederle



118th Annual Convention

AMA

NEW YORK CITY

JULY 13-17, 1969

The magnetism and the grandeur that characterizes New York City will provide a superb setting for AMA's 118th Annual Convention in July. Plan to attend now and look forward to five memorable and stimulating convention days in a city of unlimited excitement.

Continue your postgraduate education with a varied program of • four General Scientific Meetings on Chronic Pulmonary Insufficiency and Problems of Air Pollution, Human Sexuality, Impact of Medical Education on Patient Care, and Physical Fitness and Aging • 23 Section Programs • Color Television • Medical Motion Pictures • and over 700 scientific and industrial exhibits. The nation's outstanding medical authorities will lecture and discuss the significant advances in today's medicine.

In addition the AMA TV network will present more than 40 hours of convention programming.

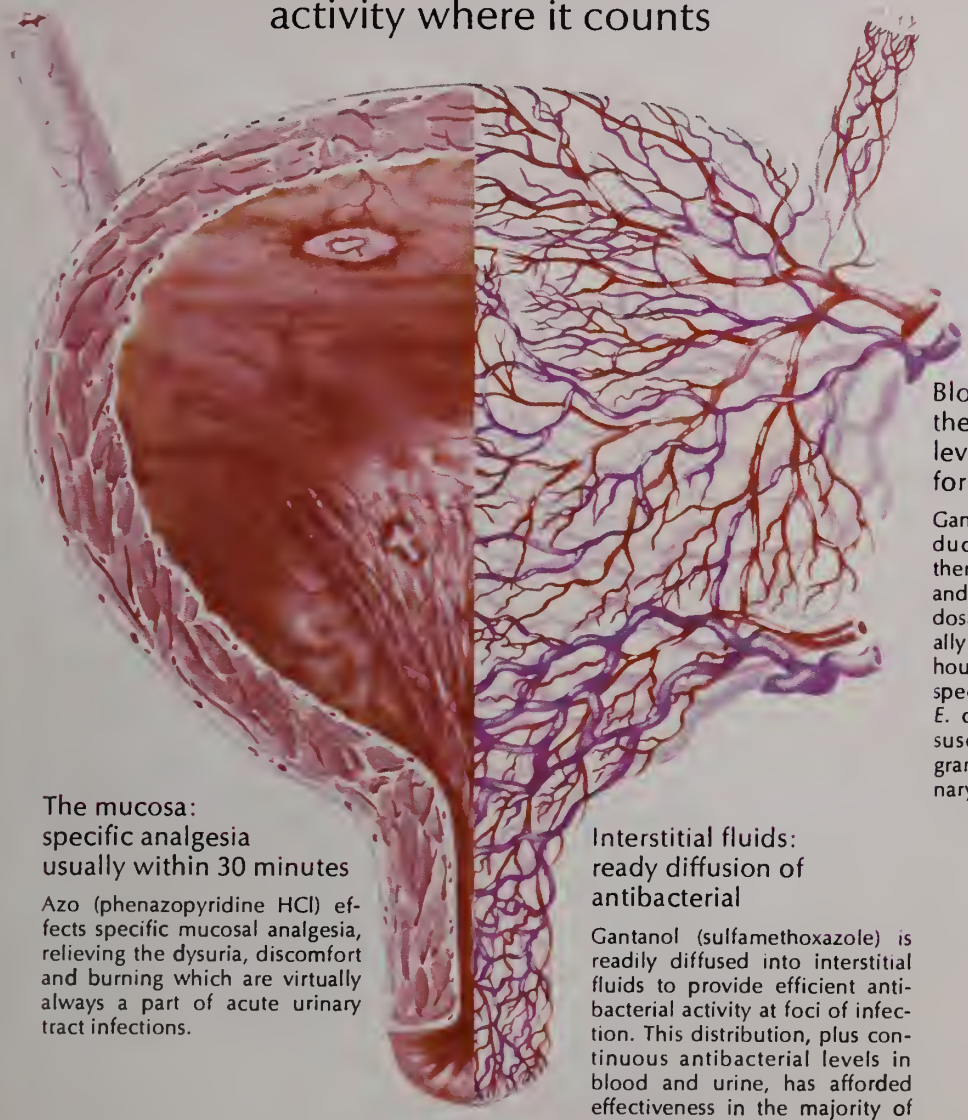
Reserve now for the Scientific Awards Dinner in honor of the Scientific Award Winners—Wednesday, July 16, 1969. Since space is limited, we suggest you make your reservations before June 30, 1969. Tickets are $10.00 each, payable in advance.

The complete scientific program, plus forms for advance registration and hotel accommodations, will be featured in JAMA, May 26, 1969.

NEW YORK CITY, NEW YORK • JULY 13-17, 1969
AMERICAN MEDICAL ASSOCIATION'S 118th ANNUAL CONVENTION

Inner Sites...

In Cystitis...Azo Gantanol® focuses analgesic-antibacterial activity where it counts



The mucosa: specific analgesia usually within 30 minutes

Azo (phenazopyridine HCl) effects specific mucosal analgesia, relieving the dysuria, discomfort and burning which are virtually always a part of acute urinary tract infections.

Interstitial fluids: ready diffusion of antibacterial

Gantanol (sulfamethoxazole) is readily diffused into interstitial fluids to provide efficient antibacterial activity at foci of infection. This distribution, plus continuous antibacterial levels in blood and urine, has afforded effectiveness in the majority of infections in which it has been used.

Blood and urine: therapeutic antibacterial levels within 2 hours for up to 12 hours

Gantanol (sulfamethoxazole) produces prompt and prolonged therapeutic levels, in both blood and urine, with convenient *b.i.d.* dosage. Clinical response is usually obtained within 24 to 48 hours. The wide antibacterial spectrum of Gantanol includes *E. coli* and a variety of other susceptible gram-negative and gram-positive pathogens in urinary tract infections.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Urinary tract infections with associated pain or discomfort when due to susceptible organisms; prophylactically in urologic surgery, catheterization and instrumentation.

Contraindicated in sulfonamide-sensitive patients, pregnant females at term, premature infants, newborn infants during the first three months of life, glomerular nephritis, severe hepatitis, uremia and pyelonephritis of pregnancy with gastrointestinal disturbances.

Warnings: Use only after critical appraisal in patients with liver damage, renal damage, urinary obstruction or blood dyscrasias. If toxic or hypersensitivity reactions or blood dyscrasias occur, discontinue therapy. In intermittent or prolonged therapy, blood counts and liver and kidney function tests should be performed.

Precautions: Observe usual sulfonamide therapy precautions including maintenance of an adequate fluid intake. Use with caution in patients with histories of allergies and/or asthma. Patients with impaired renal function should be followed may cause excessive drug accumulation. Occasional failures may occur due to resistant microorganisms. Not effective in virus and rickettsial infections.

Adverse Reactions: Headache, nausea, vomiting, urticaria, diarrhea, hepatitis, pancreatitis, blood dyscrasias, neuropathy, drug fever, skin rash, Stevens-Johnson syndrome, injection of the conjunctiva and sclera, petechiae, purpura, hematuria or crystalluria may occur, in which case the dosage should be decreased or the drug withdrawn.

ROCHE

Roche LABORATORIES

Division of Hoffmann - La Roche Inc.

Azo Gantanol®

(Each tablet contains 0.5 Gm sulfamethoxazole



Preludin® phenmetrazine hydrochloride

Preludin is indicated only as an anorexigenic agent in the treatment of obesity. It may ba used in simple obesity and in obesity complicated by diabetes, moderate hypertension (see Precautions), or pregnancy (see Warning).

Contraindications: Sevare coronary artery disease, hyperthyroidism, severe hypertension, nervous instability, and agitated prepsychotic states. Do not usa with other CNS stimulants, including MAO inhibitors.

Warning: Do not use during tha first trimester of pregnancy unless potential benafits outweigh possibla risks. There hava been clinical reports of congenital malformation, but causal relationship has not been proved. Animal teratogenic studias have been inconclusiva.

Precautions: Use with caution in modarate hypertension and cardiac decompensation. Cases involving abuse of or dependence on phenmetrazina hydrochloride have been reported. In general, thase cases were characterized by excessiva consumption of the drug for its central stimulant effect, and have resulted in a psychotic illness manifested by restlassness, mood or behavior changes, hallucinations or dalusions. Do not exceed recommended dosage.

Advarse Reactions: Dryness or unpleasant tasta in the mouth, urticaria, overstimulation, insomnia, urinary frequency or nocturia, dizziness, nausaa, or headache.

Dosaga: One 25 mg. tablet b.i.d. or t.i.d. Or ona 75 mg. Endurets tablet a day, taken by midmorning.

Availability: Pink, squara, scored tablets of 25 mg. for b.i.d. or t.i.d. administration, in bottles of 100 and 1000.

Pink, round Endurets® prolonged-action tablets of 75 mg. for once-a-day administration, in bottles of 100 and 1000. (B)R3-46-560-B

Under licensa from Boehringer Ingelheim G.m.b.H.

For complete details, please see full prascribing information.

Geigy Pharmaceuticals
Division of Geigy Chemical Corporation
Ardsley, New York 10502

She runs a good chance of losing weight.

Exercise and Preludin run together in helping patients to lose weight.

Preludin often puts a curb on appetite and promotes a sense of well-being. By boosting a dieter's spirit, Preludin may help patients get the exercise you may prescribe.

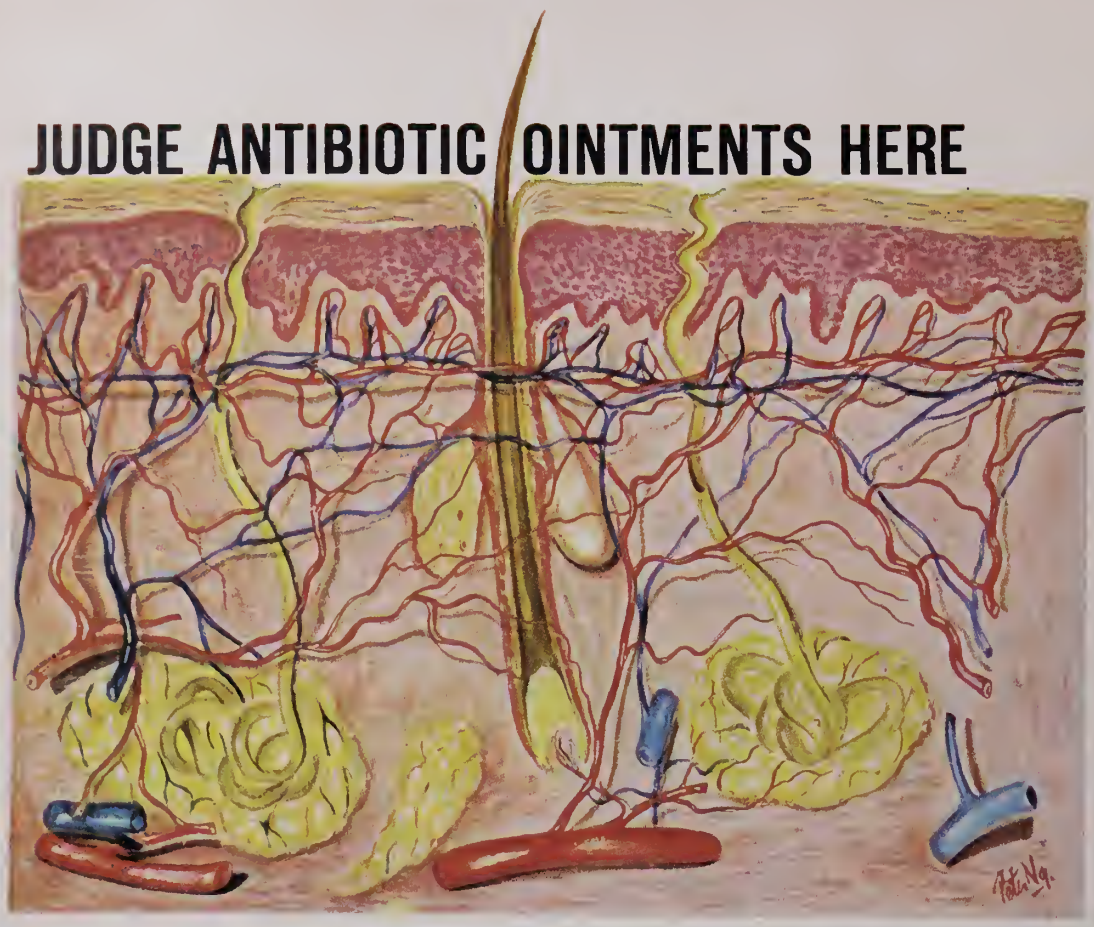
One Endurets tablet taken between breakfast and midmorning usually provides daylong and early-evening suppression of appetite.

A few patients may experience overstimulation or insomnia. For a brief summary of all adverse reactions, precautions, warning and contraindications, please see the adjoining page.

Preludin® phenmetrazine hydrochloride

Endurets® prolonged-action tablets

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®

brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.



There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

Member of the National Association of Blue Shield Plans

Vibramycin
doxycycline
New from Pfizer Research



Pfizer **LABORATORIES DIVISION**
New York, N.Y. 10017

after the first day— **The only one-dose-a-day oral broad-spectrum antibiotic**

Product Information

Actions: Vibromycin (doxycycline), a new brood-spectrum antibiotic, differs from other tetracyclines in its greater absorption from the gastrointestinol tract and its capability for once-a-day maintenance dosage. Also, in comparison with certain other tetracyclines, the absorption of Vibramycin is not notably diminished by the ingestion of food or milk.

After discontinuance of therapy, effective antibacterial levels of Vibromycin are usually present for 24-36 hours.

Animal Pharmacology: As with other tetracyclines, at doses greater than those recommended for human usage, Vibramycin (doxycycline) produces discoloration of animal thyroid glands. Careful monitoring of animals and humans has disclosed no abnormalities of thyroid function studies. Also, as with other tetracyclines, at relatively high oral doses, evidence of hepatotoxicity has been noted in dogs and signs of gastrointestinal intolerance have been seen in both dogs and monkeys.

Indications: Vibramycin has been found to be clinically effective in the treatment of a variety of bacterial infections of the respiratory and genitourinary tracts and soft-tissue infections. Since Vibramycin is a member of the tetracycline series, it may be expected to be useful in the treatment of gastrointestinal, ophthalmic and other miscellaneous infections when caused by susceptible organisms.

Contraindications: Vibramycin is contraindicated in individuals who have shown hypersensitivity to it.

Warnings: In patients with impaired renal function, reduce usual oral dosage and consider serum level determinations to avoid liver damage from excessive systemic accumulation.

Vibromycin, like other tetracyclines, may form a stable calcium complex in any bone-forming tissue, although *in vitro* it binds calcium less strongly than other tetracyclines. The use of Vibromycin during tooth development (last trimester of pregnancy, neonatal period, and early childhood) may cause discoloration of the teeth (yellow-gray-brownish). This effect may occur mostly during long-term use, but also may occur with short-treatment courses.

Increased intracranial pressure with bulging fontanelles has been observed in infants receiving tetracyclines, which effect disappears rapidly on cessation of therapy.

In certain hypersensitive individuals treated with Vibramycin, exposure to direct sunlight may precipitate a photodynamic reaction. In individuals with a history of photoallergic reactions to tetracyclines, exposure to direct sunlight should be avoided and treatment should be discontinued at first evidence of skin discomfort.

Precautions: As with any antibiotic, overgrowth of nonsusceptible organisms may occasionally occur. Constant observation of the patient is essential. If such superinfections are encountered, Vibramycin should be discontinued and replaced by appropriate therapy.

When treating gonorrhea in which lesions of primary or secondary syphilis are suspected, proper diagnostic procedures, including darkfield examinations, should be utilized. In all cases in which concomitant syphilis is suspected, monthly serological tests should be made for at least four months.

Adverse Reactions: Nausea, vomiting, diarrhea, vaginitis, and dermatitis, as well as reactions of an allergic nature, may occur but are rare. Glossitis, stomatitis, proctitis, onycholysis and discoloration of the nails may rarely occur during tetracycline therapy, as with other antibiotics. If adverse reactions, individual idiosyncrasy, or allergy occur, discontinue medication.

As with other tetracyclines, elevation of SGOT or SGPT values, anemia, neutropenia, eosinophilia or elevated BUN have been reported, the significance of which is not known at this time.

Dosage: The usual dose of Vibramycin is 200 mg. on the first day of treatment (administered 100 mg. every 12 hours) followed by a maintenance dose of 100 mg./day. The maintenance dose may be administered as a single dose, or as 50 mg. every 12 hours. In the management of more severe infections (particularly chronic infections of the urinary tract), 100 mg. every 12 hours is recommended.

The recommended dosage schedule for children weighing 100 pounds or less is 2 mg./lb. of body weight divided into two doses on the first day of treatment, followed by 1 mg./lb. of body weight given as a single daily dose or divided into two doses, on subsequent days. For more severe infections, up to 2 mg./lb. of body weight may be used. For children over 100 lbs., the usual adult dose should be used. Therapy should be continued beyond the time that symptoms and fever have subsided. It should be noted, however, that effective antibacterial levels are usually present for 24 to 36 hours following the discontinuation of Vibramycin.

When used in streptococcal infections, therapy should be continued for 10 days to prevent the development of rheumatic fever or glomerulonephritis.

Aluminum hydroxide gel given with tetracycline antibiotics has been shown to decrease their absorption.

Supply: Vibramycin Hyclate (doxycyline hyclate) is available as capsules containing doxycycline hyclate equivalent to 50 mg. of doxycycline, bottles of 50.

Vibramycin Monohydrate (doxycycline monohydrate) is available as a dry powder for oral suspension containing when reconstituted doxycycline monohydrate equivalent to 25 mg. of doxycycline per 5 cc. (each teaspoonful), with a pleasant-tasting raspberry flavor, 2 oz. bottles.

More detailed professional information available on request.

IN PATIENT BENEFITS

what does CHYMORAL's faster action mean? It can mean:

- Edema and inflammation subside twice as fast—healing time cut in half.
- The patient is restored to normal activities twice as fast.
- Lesions heal in less time—and the physical appearance of the patient improves twice as fast.
- Hospital stay...convalescent period...medication costs may be cut in half.

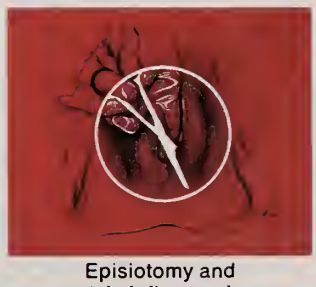
The benefits of CHYMORAL cover many conditions and the results[1] are worthy of mention.



Surgical trauma

4123 cases **91%** had good/excellent results

3470 cases **89%** had good/excellent results



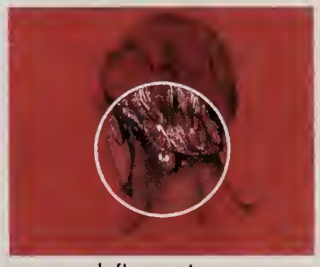
Episiotomy and pelvic inflammation



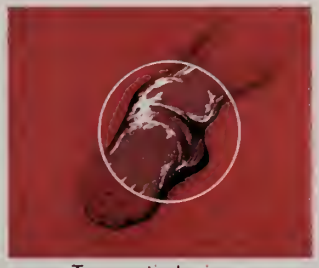
Inflammation of respiratory tract

2389 cases **80%** had good/excellent results

1055 cases **75%** had good/excellent results



Inflammatory dermatoses



Traumatic lesions

6929 cases **93%** had good/excellent results

2645 cases **83%** had good/excellent results



Eye, ear, nose and throat inflammations

***Rx.* CHYMORAL®—Enzyme tablets**

ARMOUR PHARMACEUTICAL COMPANY, Chicago, Illinois 60690, U.S.A.

[1] Based on clinical reports compiled by the Medical Division of Armour Pharmaceutical Company



Sometimes
he forgets he has hypertension, gets hot
under the collar...high under the cuff.

For such
patients, consider **Regroton®**

chlorthalidone	50 mg.
reserpine U.S.P.	0.25 mg.

To lower blood pressure
and allay anxiety in hypertension.

For brief summary of prescribing information, see next page.

RE-6392

Regroton®

Geigy

chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

the once-a-day tablet for anxious hypertensives

Regroton is a combination of two basic antihypertensives designed to lower blood pressure and allay anxiety in hypertension. With Regroton he can keep his shirt on and you can keep his blood pressure down.

Before prescribing, please review carefully the indications, contraindications, warning, precautions, adverse reactions and dosage information below.

Regroton®
Each tablet contains:
chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

Indications: Hypertension.
Contraindications: History of mental depression, hypersensitivity, and most cases of severe renal or hepatic diseases.
Warning: With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has frequently been required and deaths have occurred. Discontinue coated potassium-containing formulations immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur. Discontinue one week before electroshock therapy, and if depression or peptic ulcer occurs.
Use in pregnancy: Because chlorthalidone may cross the placental barrier and appear in cord blood and thiazides may appear in breast milk, this drug should be used with care in pregnant patients and nursing mothers. When used in women of childbearing age, the potential benefits of the drug should be weighed against the possible hazards to the fetus. Use of chlorthalidone may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. Increased respiratory secretions, nasal congestion, cyanosis and anorexia may occur in infants born to reserpine-treated mothers.
Precautions: Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs, or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. To avoid hypotension during surgery, discontinue therapy with this agent two weeks prior to elective surgical procedures. In emergency surgery, use, if needed, anticholinergic or adrenergic drugs or other supportive measures as indicated. Because of the possibility of progression of renal damage, periodic kidney function tests are indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated. Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria.
Take particular care in cirrhosis or severe ischemic heart disease and in patients receiving corticosteroids, ACTH, or digitalis. Severe salt restriction is not recommended. Use cautiously in patients with ulcerative colitis or gallstones (biliary colic may be precipitated). Bronchial asthma may occur in susceptible patients.
Adverse Reactions: The drug is generally well tolerated. The most frequent side effects are nausea, gastric irritation, vomiting, diarrhea, constipation, muscle cramps, headache, dizziness and acute gout. Other potential side effects include angina pectoris, anxiety, depression, bradycardia and ectopic cardiac rhythms (especially when used with digitalis), drowsiness, dull sensorium, hyperglycemia and glycosuria, hyperuricemia, lassitude, restlessness, transient myopia, impotence or dysuria, orthostatic hypotension which may be potentiated when chlorthalidone is combined with alcohol, barbiturates or narcotics, leukopenia, aplastic anemia, skin rashes, thrombocytopenia, agranulocytosis, nasal stuffiness, increased gastric secretions, nightmare, purpura, urticaria, ecchymosis, weakness, uveitis, optic atrophy and glaucoma, and pruritus. Eruptions and/or flushing of the skin, a reversible paralysis agitans-like syndrome, blurred vision, conjunctival injection, increased susceptibility to colds, dyspnea, weight gain, decreased libido, dryness of the mouth, deafness, anorexia, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Jaundice, xanthopsia, paresthesia, photosensitization and necrotizing angiitis are possible.
Average Dosage: One tablet daily with breakfast.
Availability: Pink, single-scored tablets in bottles of 100 and 1000.
(B)46-600-C
For details, please see complete prescribing information.

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

RE-6392

Cuando comen lo que les gusta y no lo que deben...



ayude a cubrir "el déficit" de vitaminas con

Unicap Therapeutic

10 vitaminas combinadas con 7 minerales

Cada tableta contiene:

Vitamina A	1.5 mg.
Vitamina D	10 mcg.
Mononitrato de Tiamina (B-1)	10 mg.
Riboflavina (B-2)	10 mg.
Acido Ascórbico (C) (como ascorbato de sodio)	300 mg.
Niacinamida	100 mg.
Clorhidrato de Piridoxina (B-6)	2 mg.
Pantotenato de Calcio	20 mg.
Cobalamina (B-12) (como concentrado de cobalamina)	20 mg.
Vitamina E	30 Unidades Internacionales
Hierro (a partir de 50 mg. de sulfato ferroso)	10 mg.
Yodo (como yoduro de potasio)	0.15 mg.
Calcio (como carbonato)	50 mg.
Cobre (como sulfato)	1 mg.
Manganeso (como sulfato)	1 mg.
Magnesio (como sulfato)	6 mg.
Potasio (como sulfato)	5 mg.

Posología: Adultos y niños mayores de 6 años – 1 tableta diaria.

Presentación: Frascos de 30 y 90

Upjohn

PR 5226.1 MAY, 1969

6R11 MARCA REGISTRADA EN E.U.A.: UNICAP THERAPEUTIC

UPJOHN INTER-AMERICAN CORPORATION / CAPARRA / PUERTO NUEVO



from the discord of anxiety...



to emotional harmony

with the aid of antianxiety

Librium®
(chlordiazepoxide HCl)

5-mg, 10-mg and 25-mg capsules

In an age of swift change and challenge, susceptible individuals may experience varying degrees of excessive anxiety. The resulting emotional stress may precipitate significant functional disorders or complicate existing organic disease. In properly individualized maintenance dosage, Librium (chlordiazepoxide HCl) quickly helps relieve anxiety and apprehension, provides useful adjunctive therapy in psychophysiologic disorders—yet seldom impairs mental acuity or ability to function. Librium has demonstrated a wide margin of safety in short- and long-term therapy.

Also available:

Libritabs®
(chlordiazepoxide)

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcoh and other CNS depressants. As with all CNS-acting drugs, caution patie against hazardous occupations requiring complete mental alertness (e.g operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution administering to addiction-prone individuals or those who might increa dosage; withdrawal symptoms (including convulsions), following discon tinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed agai its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limi smallest effective dosage (initially 10 mg or less per day) to preclude at ia or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommende combination therapy with other psychotropics seems indicated, carefull consider individual pharmacologic effects, particularly in use of potenti ng drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. En oy usual precautions in treatment of anxiety states with evidence of imper ing depression; suicidal tendencies may be present and protective meas es necessary. Variable effects on blood coagulation have been reported v rarely in patients receiving the drug and oral anticoagulants; causal rel tionship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion may occur, espec y in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lo r dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menst l irregularities, nausea and constipation, extrapyramidal symptoms, incr se and decreased libido—all infrequent and generally controlled with dos e reduction; changes in EEG patterns (low-voltage fast activity) may opp during and after treatment; blood dyscrasias (including agranulocytosi jaundice and hepatic dysfunction have been reported occasionally, ma g periodic blood counts and liver function tests advisable during protract therapy.

AN EPIDEMIOLOGICAL STUDY ON CORONARY ARTERY DISEASE IN PUERTO RICO

The Puerto Rico Heart Health Program

METHODOLOGY

[illegible]
[illegible]VES



BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

AN EPIDEMIOLOGICAL STUDY ON CORONARY HEART DISEASE IN PUERTO RICO
The Puerto Rico Heart Health Program 174
Mario R. García-Palmieri, MD, Manuel Feliberti, MD, Raúl Costas, Jr., MD, Angel A. Colón, MD, Mercedes Cruz-Vidal, MD, Marcelino Cortés-Alicea, MD, Angel M. Ayala, MD, Rafael Sobrino, MD and Raquel Torres, MS

OPERATIONAL PROCEDURES AT THE PUERTO RICO HEART HEALTH PROGRAM CLINIC 180
Raúl Costas, Jr., MD, Manuel Feliberti, MD, Mario R. García-Palmieri, MD, Angel A. Colón, MD, Mercedes Cruz-Vidal, MD, Marcelino Cortés-Alicea, MD, Angel M. Ayala, MD and Rafael Sobrino, MD

THE CRITERIA FOR DIAGNOSIS OF DISEASE IN A CARDIOVASCULAR EPIDEMIOLOGICAL STUDY: *The Puerto Rico Heart Health Program* 184
Mario R. García-Palmieri, MD, Raúl Costas, Jr., MD and Angel A. Colón, MD

THE ELECTROCARDIOGRAPHIC CRITERIA IN A POPULATION STUDY ON ISCHEMIC HEART DISEASE IN PUERTO RICO 190
Mario R. García-Palmieri, MD, Raúl Costas, Jr., MD, Mercedes Cruz-Vidal, MD and Marcelino Cortés-Alicea, MD

METHODS AND QUALITY CONTROL OF LABORATORY DETERMINATIONS IN A PROSPECTIVE STUDY OF ISCHEMIC HEART DISEASE 198
Angel Alberto Colón, DSc, MD, Mario R. García-Palmieri, MD and Emilio Nazario, MS

DIETARY INTERVIEWS IN AN EPIDEMIOLOGICAL STUDY OF CORONARY ARTERY DISEASE IN PUERTO RICO 202
Maresa Rodríguez, BS, Raúl Costas, Jr., MD, Edna Cordero, BS, Jeanne Tillotson, MS and Mario R. García-Palmieri, MD

MORBIDITY AND MORTALITY SURVEILLANCE IN A PROSPECTIVE EPIDEMIOLOGICAL STUDY OF CORONARY HEART DISEASE 207
Raúl Costas, Jr., MD, Mario R. García-Palmieri, MD and Manuel Feliberti, MD

STATISTICAL PROCEDURES FOR QUALITY CONTROL IN THE PUERTO RICO HEART HEALTH PROGRAM 212
Raquel Torres, MS, Raúl Costas, Jr., MD and Mario R. García-Palmieri, MD

APPENDIX 216

VOL. 61 JUNIO, 1969 NUM. 6

Why DBI-TD (phenformin HCl) is the only significant advance in oral diabetes therapy since sulfonylureas



□ glucose ○ insuli

COUNTWAY
LIBRARY OF MEDICINE
BOSTON
19 AUG 1969

1 Only DBI-TD does more than just lower blood sugar–it directs sugar primarily to where it is most needed... in muscle.

In the maturity-onset diabetic, blood sugar is elevated, but apparently not enough glucose enters muscle. Unlike other agents, DBI-TD increases glucose utilization primarily in skeletal muscle where sugar is needed.

2 Only DBI-TD actually promotes weight loss in the maturity-onset diabetic who is overweight.

All oral drugs *except* DBI-TD increase insulin release, which suppresses lipolysis and can accelerate lipogenesis. Thus DBI-TD, by avoiding insulin oversecretion, appears to ease—rather than aggravate—the weight problem in patients unresponsive to diet alone.

3 Only DBI-TD, among oral agents, helps counterbalance the inefficient action of the diabetic's own insulin.

There is increasing evidence that many overweight maturity-onset diabetics have higher than normal blood insulin levels, but this insulin is not efficient in promoting muscle glucose uptake. Unlike all other oral agents, DBI-TD helps control diabetes by selectively moving sugar into muscle without further increasing insulin levels.

4 Only DBI-TD, because of its unique action, reduces the risk of secondary failure and hypoglycemic reaction.

DBI-TD is the only agent that lowers blood sugar without stimulating the release of insulin from the pancreas. Secondary failures are infrequent with DBI-TD, and there is relative freedom from hypoglycemic reaction when DBI-TD is used alone.

a more physiological approach to begin with

DBI®-TD

(phenformin HCl)

timed-disintegration capsules 50 mg.

Dosage: 1 to 3 capsules daily. **Side Effects:** Gastrointestinal, occurring more often at higher dosage levels, abate promptly upon dosage reduction or temporary withdrawal. **Adverse Reaction:** Urticaria. **Precautions:** Occasionally an insulin-dependent patient will show "starvation" ketosis (acetonuria without hyperglycemia) which must be differentiated from "insulin lack" ketosis which is accompanied by acidosis, and treated accordingly. Lactic acidosis has been reported in nondiabetics and diabetics treated with insulin, with diet, and with DBI. Question has arisen regarding possible contribution of DBI to lactic acidosis in patients with renal impairment and azotemia and also those with severe hypotension secondary to myocardial or bowel infarction. Periodic B.U.N. determination should be made when DBI is administered in the presence of chronic renal disease. DBI should not be used when there is significant azotemia. Any cardiovascular lesion that could result in severe or sustained hypotension, which may itself lead to development of lactic acidosis, should be considered cause for immediate discontinuation of DBI at least until normal blood pressure has been restored and is maintained without vasopressors. Should lactic acidosis occur from any cause, vigorous attempts should be made to correct circulatory collapse, tissue hypoxia, and pH. **Contraindications:** Severe hepatic disease, renal disease with uremia, cardiovascular collapse. Not recommended without insulin in acute complications of diabetes (metabolic acidosis, coma, severe infections, gangrene, surgery). ***Pregnancy Warning:*** *During pregnancy, until safety is proved, use of DBI, like other oral hypoglycemic drugs, is to be avoided.* **Also Available:** DBI tablets 25 mg. *Consult product brochure.*

USV

USV PHARMACEUTICAL CORP., New York, N.Y. 10017
Producers of ARLIDIN® (nylidrin HCl)

What makes a

A man?
Another woman?
Three kids?
No kids at all?
Wrinkles?
You name it.

Is she truly depressed?

Is that why she lets go in your office?

You comfort her.
Talk to her.
And, if she is depressed, consider Pertofrane.
Because
in 3 to 5 days
she can often begin
to cope,
work,
maybe play,
even enjoy.

Pertofrane®

desipramine hydrochlorid
In depression...
when words are not enou

But before you prescribe Pertofrane, please see the full prescribing information and especially note Contraindications, Precautions, Warning, Adverse Reactions and Dosage. A brief summary of that information is included here.

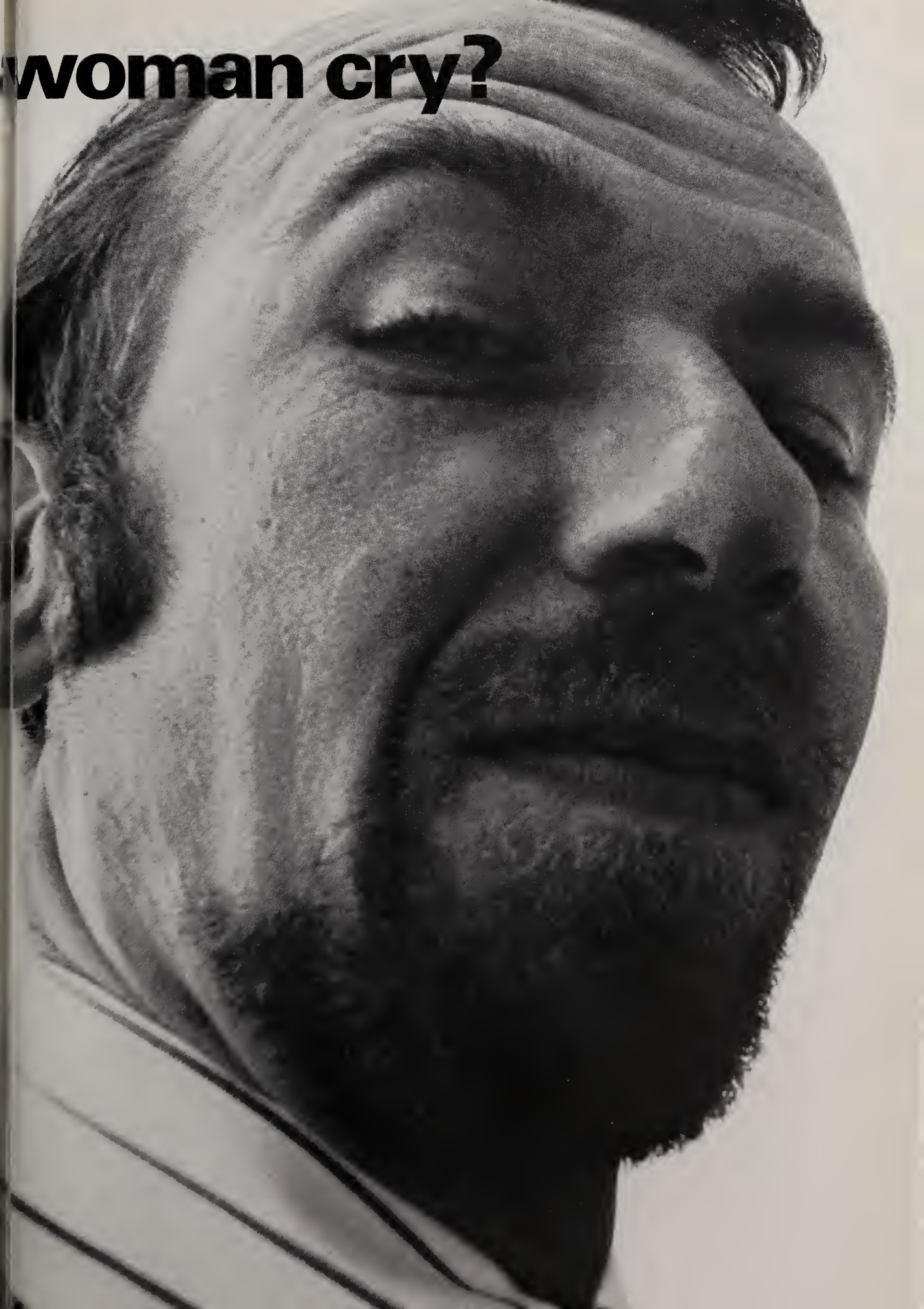
Pertofrane® desipramine hydrochloride

Indications: For relief of depression.
Contraindications: Do not use drugs of the M.A.O.I. class with Pertofrane. Hyperpyretic crises or severe convulsive seizures may occur; potentiation of adverse effects can be serious or even fatal. When substituting this drug in patients receiving an M.A.O.I., allow an interval of at least 7 days. Initial dosage in such patients should be low and increases should be gradual and cautiously prescribed.
Warning: Activation of psychosis may occasionally be observed in schizophrenic patients. Do not use in patients under 12 years old, and do not use in women who are or may become pregnant unless the clinical situation warrants the potential risk.
Precautions: Careful supervision and protective measures for potentially suicidal patients are necessary. Discontinuation of therapy or adjunctive use of a sedative or tranquilizer may be necessary in the presence of increased anxiety or agitation, hypomania or manic excitement. However, phenothiazines may aggravate the condition. Atropine-like effects may be more pronounced (e.g. paralytic ileus) in susceptible patients and in those receiving anticholinergic drugs (including antiparkinsonism agents). Carefully observe patients with increased intraocular pressure. Prescribe cautiously in hyperthyroid patients and in those receiving thyroid medications. Cardiovascular complications (myocardial infarction and arrhythmias) are potential risks since they have occasionally occurred with imipramine, the parent compound. Desipramine may block the pharmacologic activity of guanethidine and related adrenergic neuron-blocking agents. Hypertensive episodes have been observed during surgery in patients on desipramine therapy.
Before prescribing the drug, the physician should be thoroughly familiar with prescribing information, with the literature, with all adverse reactions, with the diagnosis and management of depression, and with the relative merits of all measures for treating the condition.
Adverse Reactions: Dry mouth, constipation, disturbed visual accommodation, anorexia, perspiration, insomnia, drowsiness, dizziness, headache, nausea, epigastric distress, and skin rash (including photosensitization) may appear. Since orthostatic hypotension has occurred, carefully observe patients requiring concomitant vasodilating therapy, particularly during the initial phases. Other adverse reactions include tachycardia, changes in EEG patterns, tremor, falling, mild extrapyramidal activity, neuromuscular incoordination, epileptiform seizures. A confusional state (with such symptoms as hallucinations and disorientation) occurs occasionally and may require reduced dosage or discontinuance of therapy. Rarely, transient eosinophilia, slight elevation in transaminase levels, transient jaundice, or liver damage have occurred. If abnormalities occur in liver function tests, discontinue drug and investigate. Occasional hormonal effects, particularly decreased libido or impotence and instances of gynecomastia, galactorrhea and female breast enlargement have been observed. Urinary frequency or retention may occur. The drug should be discontinued if agranulocytosis, bone marrow depression, jaundice, thrombocytopenia, or purpura occur.
Dosage: 25 to 50 mg. t.i.d. The maximum daily dose is 200 mg. Continue maintenance dosage for at least 2 months after obtaining satisfactory response. Generally, elderly and adolescent patients should be given low doses.
Availability: Pink capsules of 25 mg. in bottles of 100 and 1000. (B) 46-530-E

For complete details, please see the prescribing information.

Geigy Pharmaceuticals
Division of Geigy Chemical Corporation

woman cry?





Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®



There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

Member of the National Association of Blue Shield Plans


if he exercises

if he stops smoking if he takes Arlidin® (nylidrin HCl) the improvement can be significant!

in peripheral vascular disease: **EXERCISE** "Exercise is the specific physiologic stimulus for producing vasodilation in skeletal muscle."[1] **SMOKING** "The first and most important consideration of treatment is firm insistence that the patient stop smoking immediately and permanently. The reason for this is the powerful vasoconstricting action of smoking which is responsible for diminishing the peripheral circulation to a great degree."[2] **ARLIDIN** The overall physiological effect of a therapeutic agent should be similar to exercise—that is, both to increase cardiac output and to produce peripheral vasodilation.[3] "The ideal agent should be administered in the same way that we prescribe exercise—that is, three or four times a day for many years rather than for several weeks. The therapeutic goal is to increase blood flow through the capillary beds by way of a patent and constantly expanding collateral blood supply. At this time, I am aware of only one agent which fulfills the requirements as outlined above, namely nylidrin (Arlidin)."[3]

Contraindications: Acute myocardial infarction. (Following myocardial infarction, the initiation or reestablishment of this therapy should be undertaken in the same way as physical exercise. After a reasonable healing period, gradual upward adjustment of dosage to therapeutic levels may be attempted.) **Precautions:** Use with caution in the presence of a recent myocardial lesion, paroxysmal tachycardia, severe angina pectoris and thyrotoxicosis. **Adverse Reaction:** Occasional palpitation. **Dosage:** ½ to 1 tablet (3 to 6 mg.) three or four times a day is the usual effective dosage; increased, if necessary, to 2 tablets three or four times a day. Parenterally, 0.5 cc. by subcutaneous or intramuscular injection; increased gradually to 1 cc. one or more times daily, as needed. **Available:** Tablets: 6 mg. scored, bottles of 50, 100, and 500. Parenteral: 5 mg. per cc., 1 cc. ampuls (6 per box); 10 cc. multiple-dose vials (1 per box). **References:** 1. deCrinis, K., Redisch, W. and Steele, J.M.: Proc. Soc. Exper. Biol. Med. *102*:29, 1959. 2. Samuels, S.S.: Med. Times *88*:332, 1960. 3. Karpman, H.L.: Canad. Med. Ass. J. *94*:457, 1966.

arlidin®
(nylidrin HCl)

USV

USV PHARMACEUTICAL CORPORATION
New York, N.Y. 10017

Only from Ortho...



the product of choice for the method of choice

ORTHO PHARMACEUTICAL CORPORATION
RARITAN, NEW JERSEY 08869

Ortho

© OPC 1967

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

Organo Oficial

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*

Stanley H. Asencio
Rusell del Toro
Herman J. Flax
M. R. García Palmieri
Lilliam Haddock
F. Hernández Morales
José E. López
Norman Maldonado
Nathan Rifkinson
Rafael Sorrentino
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

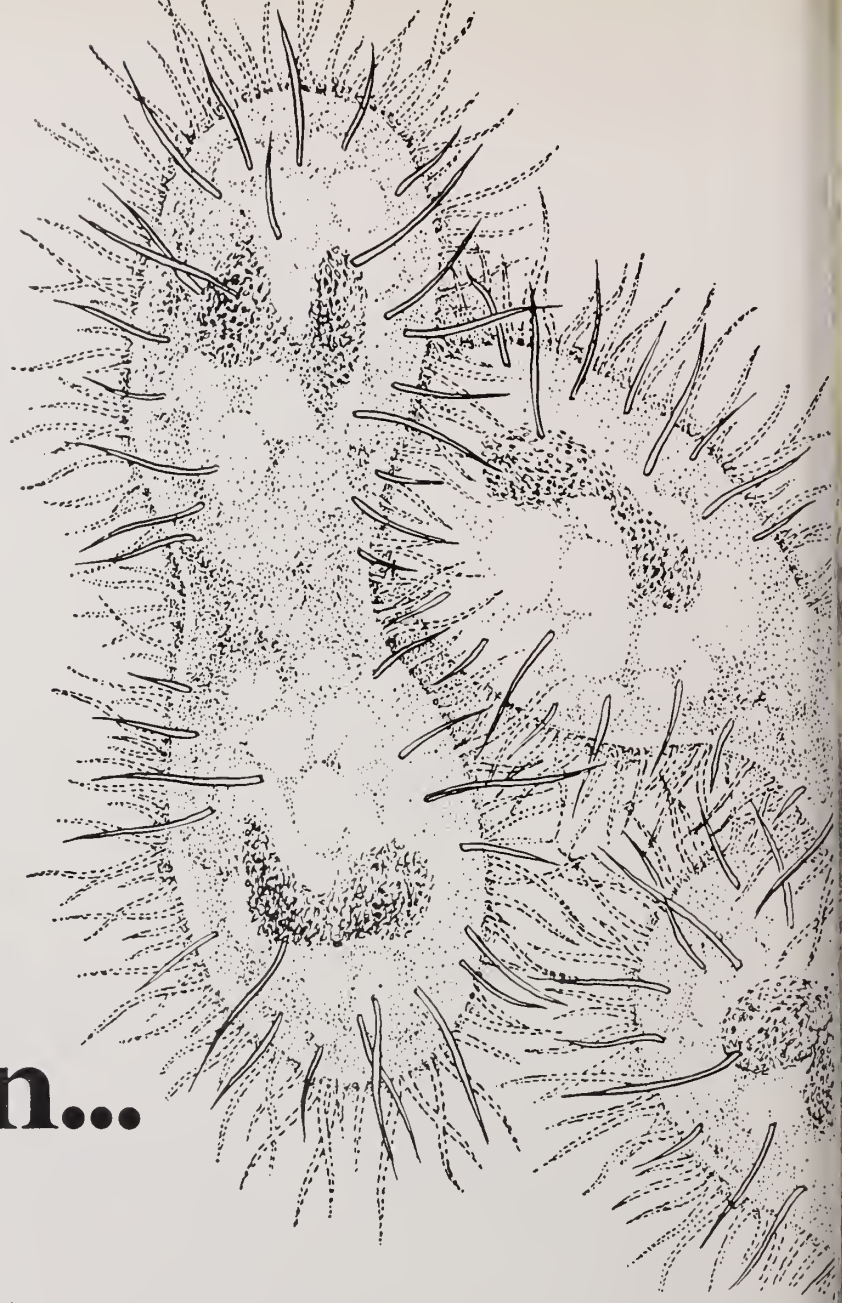
ASESORES:
José M. Rigau
José E. Sifontes

Oficina Administrativa:
Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:
El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:
Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.



A high index of suspicion... E. coli

How high is the "index of suspicion" for *E. coli* in urinary tract infections?

Recently it has been estimated that about 86 per cent of positive cultures in first attacks of urinary tract infection are *E. coli*.[1] It has also been noted that "The coliform group, especially *E. coli*, accounts for approximately 90 per cent of initial infections...."[2]

Consider wide-spectrum Gantanol® (sulfamethoxazole) for its high "index of confidence"—its proven effectiveness against *E. coli* and other sensitive gram-negative and gram-positive organisms. Therapeutic levels of Gantanol in blood and urine are achieved within 2 hours after a 2-Gm starting dose, with ready diffusion into interstitial fluids. Responsive infections generally clear within 5 to 7 days, with relief of symptoms usually seen within 24-48 hours.

Gantanol also earns its high "index of confidence" because Gantanol therapy is relatively free from complications, including the problem of bacterial resistance or superinfection.

Convenient, economical dosage schedule: *b.i.d.*

References: 1. Vernier, R. L., in Patient Care Feature: *Patient Care, 1*:20 (Feb.) 1967. **2.** Beeson, P. B.: "The Infectious Diseases," in Beeson, P. B., and McDermott, W. (eds.): *Cecil-Loeb Textbook of Medicine*, ed. 12, Philadelphia, W. B. Saunders Company, 1967, p. 230.

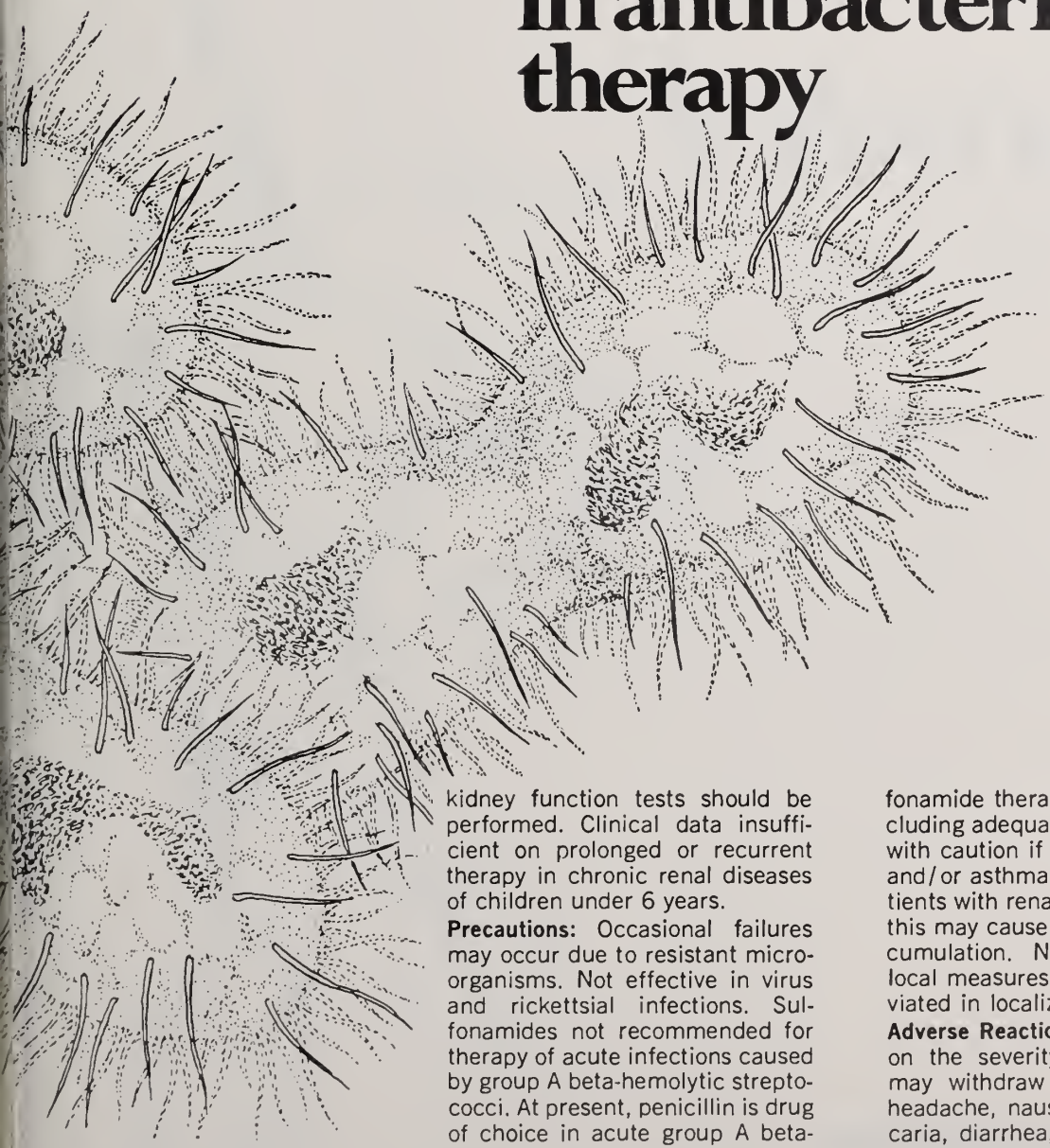
Before prescribing, please consult complete product information, a summary of which follows:

Indications: Acute and chronic urinary tract, respiratory and soft tissue infections due to susceptible microorganisms; prophylactically following diagnostic instrumental procedures on genitourinary tract.

Contraindicated in sulfonamide-sensitive patients, pregnant females at term, premature infants, or newborn infants during first 3 months of life.

Warnings: Use only after critical appraisal in patients with liver or renal damage, urinary obstruction or blood dyscrasias. Deaths reported from hypersensitivity reactions, Stevens-Johnson syndrome, agranulocytosis, aplastic anemia and other blood dyscrasias. In closely intermittent or prolonged therapy, blood counts and liver and

For a high index of confidence... Gantanol® (sulfamethoxazole) in antibacterial therapy



Artist's rendition of E. coli. As with most strains of E. coli, these have flagella and are motile.

kidney function tests should be performed. Clinical data insufficient on prolonged or recurrent therapy in chronic renal diseases of children under 6 years.

Precautions: Occasional failures may occur due to resistant microorganisms. Not effective in virus and rickettsial infections. Sulfonamides not recommended for therapy of acute infections caused by group A beta-hemolytic streptococci. At present, penicillin is drug of choice in acute group A beta-hemolytic streptococcal infections; although Gantanol has produced favorable bacteriologic conversion rates in this infection, data insufficient on long-term follow-up studies as to its effect on sequelae of rheumatic fever or acute glomerulonephritis. If other treatment cannot be used and Gantanol is employed in such infections, *important that therapy be continued in usual recommended dosage for at least 10 days*. Observe usual sulfonamide therapy precautions, including adequate fluid intake. Use with caution if history of allergies and/or asthma. Follow closely patients with renal impairment since this may cause excessive drug accumulation. Need for indicated local measures or surgery not obviated in localized infections.

Adverse Reactions: Depending upon the severity of the reaction, may withdraw drug in event of headache, nausea, vomiting, urticaria, diarrhea, hepatitis, pancreatitis, blood dyscrasias, neuropathy, drug fever, Stevens-Johnson syndrome, skin rash, injection of the conjunctiva and sclera, petechiae, purpura, hematuria and crystalluria.

ROCHE

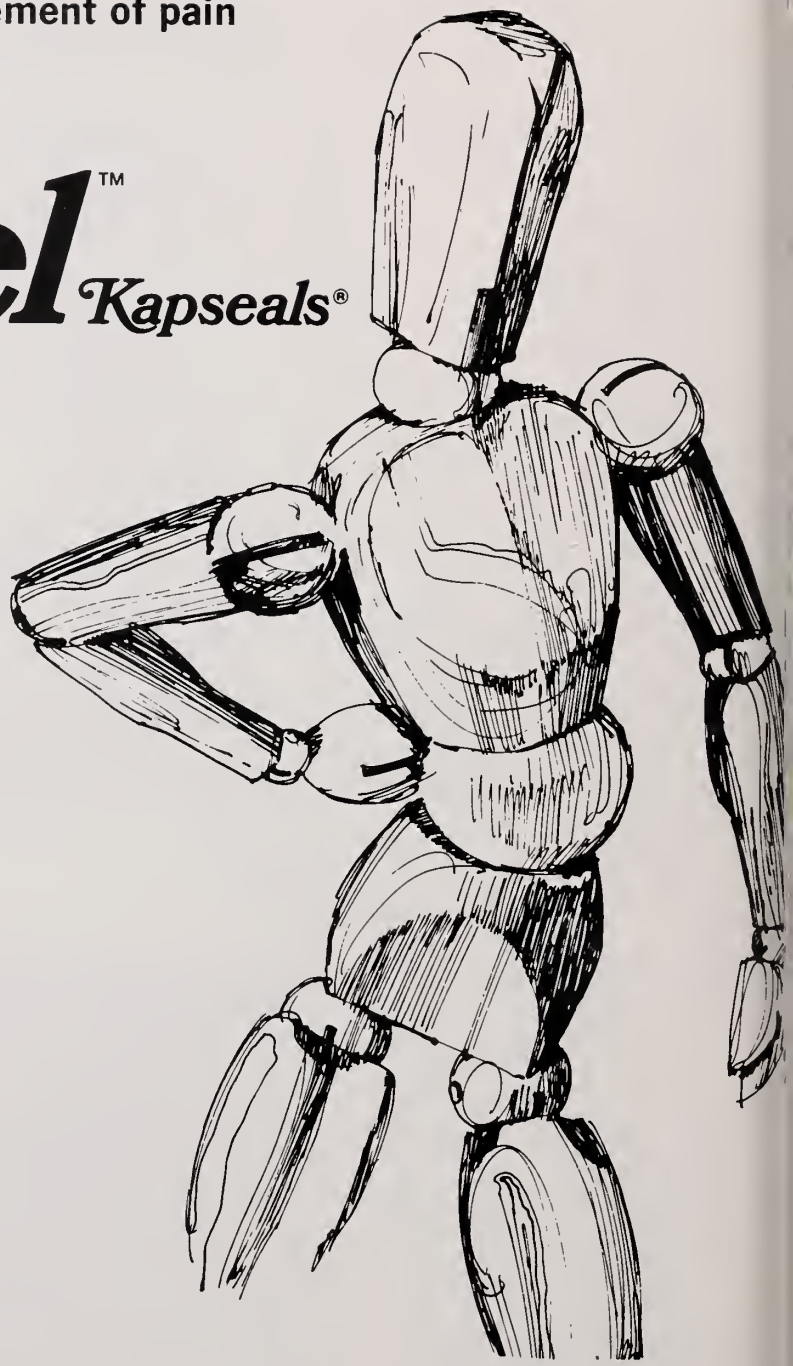
Roche
LABORATORIES

Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

NEW . . . for effective management of pain

Ponstel™ *Kapseals*®
(mefenamic acid)

a nonnarcotic oral analgesic



PARKE-DAVIS

ACKNOWLEDGMENTS

We are specially indebted to Dr. William Zukel, Associate Director for Epidemiology and Biometry of the National Heart Institute and Dr. William B. Kannel from the Framingham Study for their supervision and continuous advice, without which the Puerto Rico Heart Health Program could not have been accomplished. We also acknowledge the cooperation of Mr. Harold Kahn, Mrs. Jeanne Truett, Miss Patricia M. MacNamara and Miss Jeanne Tillotson who have contributed in different aspects of the study.

AN EPIDEMIOLOGICAL STUDY ON CORONARY HEART DISEASE IN PUERTO RICO:
The Puerto Rico Heart Health Program

Mario R. García-Palmieri, MD
Manuel Feliberti, MD
Raúl Costas, Jr., MD
Angel A. Colón, MD
Mercedes Cruz-Vidal, MD
Marcelino Cortés-Alicea, MD
Angel M. Ayala, MD
Rafael Sobrino, MD
Raquel Torres, MS

Puerto Rico is a tropical island with an area of 3,400 square miles located between parallels of 18 degrees and 19 degrees North latitude. The average elevation of the mountains is 800 feet with a maximum elevation of 4,000 feet. The mountainous area extends across the island from the Northeast to the Southwest corners. The mean temperature for the entire island is 73.9 degrees in the winter and 79 degrees in the summer with an average temperature of 76.8 degrees.

During the last 25 years the island of Puerto Rico has been experiencing a gradual transition from an agricultural to an industrial economy. Concomitant with this change, mortality rates for coronary heart disease (CHD) have increased (1). Despite the increase in mortality rates for coronary heart disease in Puerto Rico, statistics have shown lower age specific mortality rates from this illness in the island than those encountered in the population of the continental United States (2, 3). Thus, in 1963 the death rate for males 45 to 64 years of age was 202 for Puerto Rico and 679 for the United States (4).

An evaluation of the accuracy of this difference by investigating the reliability of diagnosis on death certificates in Puerto Rico was conducted. The presence of the difference was confirmed (3, 5). The high percentage of autopsies performed (52.7 percent) in Puerto Rico was helpful in validating the death certificate information (3).

The International Atherosclerosis Project has demonstrated markedly less severe atheromatous changes in the coronaries and aortas of Puerto Ricans as compared to U. S. continentals (6).

A series of preliminary investigations conducted by the authors in 1964 on Puerto Rican males between the ages of forty-five and sixty-four residing in rural and urban areas have shown statistically significant differences in certain characteristics claimed to be related to the development of coronary artery disease (7, 8).

In view of the preceding information we considered Puerto Rico an interesting community for the conduction of an epidemiological prospective study of coronary heart disease. In such a study a large number of subjects found to be free of disease would be examined and followed for a period of years until a sizable number have acquired the disease. It would then be possible to search for the factors which influence the development of disease in one group and not in the other. The fact that two distinct populations, a rural and an urban, have been identified beforehand would also permit the examination of the possible influence of the factors under study upon the development of the disease in these groups. As by-products of the study would be data on prevalence and incidence of CHD and other cardiovascular diseases, and a characterization of the population.

It is the purpose of this paper to present a description of the epidemiological prospective study on coronary artery disease that is being conducted in Puerto Rico known as the Puerto Rico Heart Health Program (Programa de Salud del Corazón).

The population selected for the study was a cohort of 10,000 males aged 45 to 64 years at the time of initial contact. This was considered a proper size to generate enough cases of CHD during the next few years that will be able to demonstrate significant differences in the factors under investigation among those that develop the disease and those "free of disease". This age and sex group has been found to exhibit the largest differences in CHD when compared to the U. S. The cohort would include both urban and rural subjects in a proportion of 2:1. Communities were selected which, according to the 1960 census contained the required number of males of the ages specified in the urban-

From the Department of Medicine, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico.

This study was supported by Contract No. PH-43-63-620 of the National Heart Institute of the U. S. Public Health Service.

rural proportion indicated. The communities were classified as urban if located within the San Juan Metropolitan Area (Bayamón, Guaynabo, Carolina), and as rural if located in the hilly area in the interior (Naranjito, Comerío, Barranquitas, Cidra). See Fig. 1. The study was conducted in the Northeast Region of the Department of Health and Welfare of the Commonwealth of Puerto Rico which is under the administration of the School of Medicine of the University of Puerto Rico. It includes the necessary communities which are located within relatively accessible distances from the University (District) Hospital, the site of the study.



Fig. 1: *Puerto Rico Northeast Medical Region*

A house-to-house census of these communities was then made from October 1964 to June 1965 by the personnel of the Planning Board of the Commonwealth of Puerto Rico who regularly conduct the decennial census. Any Enumeration District of an urban municipality which contained a cluster of 25 or more dwelling units was classified as urban and enumerated for the study. Any Enumeration District of a rural municipality located outside the town limits was classified as rural and enumerated for the study. Rural enumeration districts of urban municipalities and urban enumeration districts of rural municipalities were excluded. The final census of all males aged 45 to 64 in the selected areas yielded a total of 9,002 urban and 3,867 rural males. The Census Bureau submitted quarterly listings of subjects enumerated during the previous 3 months.

Before starting the study the following decisions were agreed upon as to the status of subjects involved in special circumstances:

1. Persons dying before the date of the initial appointment are removed from the study list. Those dying after the date of the first appointment but that failed to show up for examination, are retained as non-respondents.
2. Persons moving outside the study area before the date of the initial appointment are removed from the study list. Those moving after the date of first appointment and those moving within the study area are retained. Those whose new address cannot be identified are retained.
3. Persons who cannot be located because they cannot be identified after a thorough field investigation of the residential cluster are considered a census error and are removed from the study list. Those not located for any other reason are retained.

Members of the research group met with representatives of the medical society, the Department of Health, the local Heart Association and communication media and obtained their support.

Following a publicity campaign by means of posters, newspapers, television, and civic organizations, a meeting was held with prominent citizens of each municipality under study. In urban areas a central committee was chosen, and neighborhood committees were organized in the recruitment of subjects from each sector of the city. In rural areas leaders were appointed and made responsible for establishing contact with specific groups of enumerated neighbors.

Appointment letters inviting to attend the clinic on a specific date and reminders were sent to subjects from the census list in numerical order. In light of the proportion of 2 urban per each rural subject, the schedule of the clinic was made so that out of every 3 consecutive clinic days two were reserved for urban residents and one for rural dwellers. A telephone call was made the day before the appointment to those having a telephone. Subjects failing to keep their appointments were also approached by the neighborhood committees, by rural leaders, or by a field worker of the staff. In some rural areas a final effort was made by moving staff and equip-

ment into the field to perform the examination in town halls, churches, restaurants, and even cockfight rings. Later on a station wagon was used to bring subjects residing in distant rural areas to the clinic.

The first examination cycle was started in May, 1965 with an aim of examining at least 80 percent of the enumerated individuals in order to obtain the sample of 10,000 males.

The studies performed consist of the following:

1. Identification information
2. Social interview, including education and occupation of subject as well as that of his father, income, cause of and age of death of parents, smoking habits and physical activity.
3. Nutritional interview by the 24-hour recall technic.
4. Medical history, including past history of heart murmurs, heart disease, high blood pressure, chronic cough, hemoptysis, hematuria, renal calculi, renal infections, thyroid disease, diabetes, parasitosis, other illnesses, operations, hospitalizations, and use of cardiac drugs. It was included an investigation of cardiovascular symptomatology such as chest discomfort, dyspnea, orthopnea, paroxysmal nocturnal dyspnea, ankle edema, sudden unilateral muscular weakness, sudden speech defect, sudden visual defect, and discomfort of lower extremities upon walking.
5. Physical examination, aimed primarily at detecting cardiovascular, cerebrovascular, and peripheral vascular abnormalities, and including:
   a. Height, weight, skinfold measurement over the triceps region, arm girth, and knee breadth.
   b. Presence or absence of arcus senilis, xanthelasma, xanthoma, thyroid abnormality, kyphosis, scoliosis, increased anteroposterior diameter of chest, and pulmonary disease.
   c. Cardiac evaluation for size, abnormal sounds and rhythms, murmurs, and pulse and blood pressure determinations at the beginning and at the end of the medical examination.
   d. Examination of the abdomen for liver enlargement and tenderness and other abnormalities.
   e. Examination of the extremities for presence or absence of femoral, posterior tibial and dorsalis pedis pulsations, ankle edema, varicose veins, and other signs of peripheral vascular disease.
   f. Neurological examination, especially for speech difficulty, mental changes, localized muscular weakness, visual defect, pathological reflexes, cranial nerve abnormality, cerebellar signs, and sensory deficit.
   g. Physiological estimate of anxiety, based on the presence or absence of tremor, perspiring hands or axillae, labile pulse and blood pressure, hyperactive tendon reflexes, restlessness, difficulty in swallowing and fluttering eyelids.
6. Vital capacity measurement.
7. Twelve-lead electrocardiogram.
8. Examination of urine specimen for sugar and albumin (9).
9. Examination of blood sample for:
   a. Hematocrit (10)
   b. Serologic test for syphilis (VDRL)(11)
   c. Glucose (12, 13)
   d. Serum lactescence
   e. Light transmission
   f. Serum cholesterol (14, 15)
   g. Serum glycerides (16)
   h. Lipoprotein electrophoresis by paper strip method.

All information was recorded on precoded forms. A subsequent examination is to be conducted in a period of time no longer than 3 years after the initial examination.

The methodology for the development of the clinic, the examination of the subjects and the laboratory procedures done are described in detail in other articles of this journal (17, 18).

Special consideration was given to the establishment of reliable clinical criteria for diagnosis of disease in order to guarantee a high degree of diagnostic consistency that will permit a sound scientific correlation of the characteristics under study with the specific disease entities (19). The criteria were clearly outlined and dependent exclusively upon the basic information gathered at the examination.

The criteria were derived from several sources: (1) criteria that have already been used in other epidemiological investigations, specially the Framingham study (20, 22), (2) modifications of the Nomenclature of the New York Heart Association (23), (3) recommendations of the World Health Organization (24, 25), (4) recommendations of conferences sponsored by the American Heart Association and United States Public Health Service (26, 27), and (5) we have designed and adopted additional criteria not previously reported in epidemiological studies of this type (19). Usually unquestioned clinical diagnoses based on the fulfilled criteria were labeled as "definite". Those highly suggestive but not diagnostic were identified as "possible".

Clinical criteria for ischemic, hypertensive, rheumatic, syphilitic, congenital, pulmonary and other heart disease; cerebrovascular disease; peripheral vascular disease; and diabetes mellitus were included.

The electrocardiogram is one of the basic tools used in this epidemiological study of coronary heart disease. A "standard" resting electrocardiogram is obtained in each subject in the supine position from a direct writing machine calibrated so that 1 mV equals 1 cm. The twelve conventional leads are recorded, namely leads I, II, III, aVR, aVL, aVF and V_1 to V_6. To have a most effective reading of the electrocardiograms, specific criteria were made available to the electrocardiographers in order to ensure internal consistency in the interpretation of the tracings (28). Usually unquestioned electrocardiographic abnormalities are labeled as "definite" and abnormalities highly suggestive but not specific for an electrocardiographic diagnosis are classified as "possible". Tracings are read without reference to the clinical data in order to guarantee that the readers adhere to the specified criteria and describe the electrocardiographic alterations as objectively as possible. Periodic double blind readings on a subsample are conducted among the three cardiologists reading the tracings in order to test the comparability of the interpretation and adherence to the criteria.

The electrocardiographic criteria are organized under the headings of myocardial infarction and possible coronary insufficiency, left ventricular hypertrophy, right ventricular hypertrophy, bundle branch block, Wolff-Parkinson-White Syndrome, T-wave changes, ST segment changes, low voltage, axis deviation, intervals and heart rate, and serial electrocardiograms (28).

In an attempt to provide a smooth functioning laboratory operation specific measures for collection and handling samples, recording of results, storage of frozen samples, methods of analysis and quality control measures were instituted (18).

Laboratory quality control measures include duplication of samples, repeated duplicate analysis of samples that may appear too high or too low on the daily inspection of the results, reintroduction of laboratory samples by the laboratory supervisor with a completely different identification, repeated analysis of pooled sera, participation in the proficiency programs of the National Communicable Disease Center, periodic exchange of samples with other laboratories performing similar analyses such as the Framingham Heart Program and some National Institute of Health Laboratories, daily introduction of double blind samples on a schedule designed by and known only by the program's statistician, periodic analysis of commercial samples of known values, and, finally participation in a special quality control program specifically designed and supervised by the Communicable Disease Center for the Epidemiological Heart Disease Projects at Puerto Rico, San Francisco and Framingham.

As it is known that serum lipids may be affected by the contents of the diet and that diet may have an influence in the development of CHD a decision was made to include a dietetic evaluation as part of this study. It is, unfortunately, very difficult to conduct diet studies in a competent way when dealing with large groups of people as occur in large epidemiological studies. Due to this, it was decided to use a dietetic sampling technic which could be easily and quickly administered and still yield results that would be useful from the research point of view when analyzed by groups. Of the available technics, the 24 hour recall of the previous day's diet was chosen (29). At the first examination cycle all subjects will have this interview and on the second examination cycle a subsample will be submitted to a more elaborate and time consuming procedure as the Burke interview (30).

For each type of interview a set of tables showing the nutritive composition of each food was calculated by the dietitian.

Eventually the accuracy of a longitudinal study will depend upon the discovery of all instances of new disease. This requires a comprehensive surveillance of the population under study. In the Puerto Rico Heart Health Program we have a system for morbidity and mortality surveillance for all individuals enumerated for the study including both respondents and non-respondents (31). We aim to detect all events of myocardial infarction, coronary insufficiency and cerebrovascular disease and to document past histories of myocardial infarction which cannot be confirmed by current electrocardiogram. The hospitals where most hospitalizations occur are visited on a monthly basis while smaller hospitals every 3 to 6 months. This is done by a medical records librarian of our staff. This surveillance is supplemented by information given by subjects at the time of a study examination as to hospitalizations or electrocardiograms since the previous visit.

Each hospital record of a study subject is abstracted in special forms and photocopies of all electrocardiograms available are done.

Study subjects that failed to return to the clinic will receive a mail surveillance form asking information concerning hospitalizations and electrocardiograms.

In order to identify all deaths occurring in enumerated individuals, there are periodic visits to demographic registries, a search of obituaries in all daily newspapers and a list of all deaths of males 40 to 69 years of age is received on a monthly basis from the office of Demography and Vital Statistics of the Department of Health. Photocopies of death certificates of study subjects are obtained.

Since the large majority of autopsies on deceased persons in the Northeast Region are performed at the Puerto Rico Medical Center and the Institute of Legal Medicine, a 24 hour monitoring system is available at these two institutions in order to identify subjects belonging to our study. Special pathological procedures are performed in these cases.

From the description above it can be noted that a considerable amount of data related to the different variables under study is being collected. In order to be useful, these data must be clearly analyzed.

Due to the size of the population and the multiple observations involved it is a prerequisite for a study of this type to analyze data by means of computers.

The design of the study was made so that all information is obtained in precoded forms from which cards are key punched and submitted to analysis at the Data Processing Center of the Puerto Rico Medical Center. A set of legal codes has been defined for each variable in the record with a lower limit and an upper limit. The computer checks for illegal codes as identified for each variable, for duplication of record numbers, and for presence of all decks for each record. The computer prepares a listing in numerical order of case number, including all decks and prints out any error. The listing with the error message is corrected at the Program.

The means of the values recorded by the different interviewers are compared on a monthly basis and a report showing the differences is given to them. This helps in maintaining internal consistency and quality control.

Every six months the Data Processing Division prepares a report giving the mean, standard error of the mean, variances, sum of squares and extremes for different variables.

The first examination cycle was closed in December, 1968. The data gathered are being analyzed at present and the resultswill be published in a near future.

Summary

A prospective epidemiological study on coronary heart disease in a sample of 10,000 males aged 45 to 64, known as the Puerto Rico Heart Health Program, is being conducted at the Department of Medicine of the School of Medicine of the University of Puerto Rico. The justifications for such study, the objectives, and a general description of the research design have been presented in this paper. It has included sampling, interviews, recorded data, laboratory procedures, specific clinical and electrocardiographic criteria, dietary evaluation, quality control measures, morbidity and mortality surveillance and data analysis.

References

1. La mortalidad por enfermedades del corazón en Puerto Rico, 1913-1962. Sección de bioestadística. Departamento de Medicina Preventiva y Salud Pública, Escuela de Medicina, Universidad de Puerto Rico, San Juan, P. R. 1963.
2. Vital statistics of the United States, 1960, Vol. II, Part B. National Vital Statistics Division, Department of Health, Education and Welfare, U. S. Public Health Service, 1960.
3. *García-Palmieri, M. R., Feliberti, M., Costas, R., Benson, H., Blanton, J. and Aixalá, R.:* Coronary heart disease mortality: A death certificate study. J. Chronic Dis. 18: 1317, 1965.
4. *Vázquez, J. L.:* Personal communication.
5. *Costas, R., García-Palmieri, M. R., Feliberti, M., Benson, H., Blanton, J. and Aixalá, R.:* Accuracy of death certification in metropolitan San Juan. Bol. Asoc. Méd. P. Rico 56: 411, 1964.
6. *Galindo, L., Arean, V., Strong, J. P. and Baldizon, C.:* Atherosclerosis in Puerto Rico. Study of early aortic lesions. Arch. Path. 72: 367, 1961.
7. *Blanton, J. H., Rodríguez, M., Costas, R., Jr., Colón, A. A., Feliberti, M., Benson, H., Aixalá, R. and García-Palmieri, M. R.:* A dietary study of men residing in urban and rural areas of Puerto Rico. Amer. J. Clin. Nutr. 18: 169, 1966.
8. *Benson, H., Costas, R., Jr., García-Palmieri, M. R., Feliberti, M., Aixalá, R., Blanton, J. H. and Colón, A. A.:* Coronary heart disease risk factors. A comparison of two Puerto Rican populations. Amer. J. Public Health 56: 1057, 1966.
9. *Todd-Sanford* "Clinical Diagnosis by Laboratory Methods". Davidsohn and Wells, 13th Ed., Saunders, Philadelphia, Pa., 1963.
10. *Guest, G. M. and Silver, V. E.:* A centrifuge method for the determination of the volume of cells in blood. J. Lab. Clin. Med. 19: 757, 1934.
11. Public Health Service Publication No. 411, 1955.
12. *Nelson, N.:* A photometric adaptation of the Somogyi method for the determination of glucose. J. Biol. Chem. 153: 375, 1944.

13. *Somogyi, M.:* A new reagent for the determination of sugars. J. Biol. Chem. 160: 69, 1945.
14. *Huang, J. C., Wefler, J. C., Chen, C. P., Wefler, V. and Raftery, A.:* A stable reagent for the Lieberman-Burchard reaction. Application to rapid cholesterol determination. Anal. Chem. 33: 1405, 1961.
15. *Colón, A. A., García-Palmieri, M. R. and Nazario, E. A.:* Evaluation of a new method for the determination of cholesterol in blood. Bol. Asoc. Méd. P. Rico 56: 371, 1964.
16. *Van Handel, E. and Zilversmidt, D. B.:* Micromethod for the direct determination of serum triglycerides. J. Lab. Clin. Med. 50: 152, 1957.
17. *Costas, R., Jr., Feliberti, M., García-Palmieri, M. R., Colón, A. A., Cruz-Vidal, M., Cortés-Alicea, M., Ayala, A. M. and Sobrino, R.:* Operational procedures at the Puerto Rico Heart Health Program Clinic. Bol. Asoc. Méd. P. Rico 61: 180, 1969.
18. *Colón, A. A., García-Palmieri, M. R. and Nazario, E. A.:* Methods and quality control of laboratory determinations in a prospective study of ischemic heart disease. Bol. Asoc. Méd. P. Rico 61: 198, 1969.
19. *García-Palmieri, M. R., Costas, R., Jr., and Colón, A. A.:* The criteria for diagnosis of disease in a cardiovascular epidemiological study: The Puerto Rico Heart Health Program. Bol. Asoc. Méd. P. Rico 61: 184, 1969.
20. Report of the conference on longitudinal cardiovascular studies at the Hotel Beaconsfield, Brookline, Massachusetts, June 17-18, 1957.
21. *Dawber, T. R., Moore, F. E., Jr., Mann, G. V.:* II Coronary heart disease in the Framingham study. Amer. J. Pub. Health 47: 4, 1957.
22. *Kannel, W. B., Dawber, T. R., Kagan, A., Revotskie, N. and Stokes, J.:* III Factors of risk in the development of coronary heart disease - Six year follow-up experience. The Framingham study. Ann. Intern. Med. 55: 33, 1961.
23. Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Blood Vessels. Criteria Committee of the N. Y. Heart Association. 5th Ed., New York, 1953.
24. Hypertension and coronary heart disease: Classification and criteria for epidemiological studies. First report of the expert committee on cardiovascular disease and hypertension. WHO Tech. Rep. Ser. No. 168, 1959.
25. Arterial hypertension and ischemic heart disease. Preventive aspects. Report of an expert committee. WHO Tec. Rep. Ser. No. 231, 1962.
26. Epidemiology of cardiovascular diseases: Methodology. Report of Princeton conference. Amer. J. Pub. Health Suppl. 10: 50, 1960.
27. U. S. Public Health Service: A classification and outline of cerebrovascular diseases. Neurology 8: 1, 1958.
28. *García-Palmieri, M. R., Costas, R., Jr., Cruz-Vidal, M. and Cortés-Alicea, M.:* The electrocardiographic criteria in a population study on ischemic heart disease in Puerto Rico. Bol. Asoc. Méd. P. Rico 61: 190, 1969.
29. *Becker, B. A., Indik, B. P. and Beeuwkes, A. M.:* Dietary intake methodologies. A review. Ann Arbor 1960. The University of Michigan Research Institute.
30. *Burke, B. S.:* The dietary history as a tool in research. J. Amer. Diet. Ass. 23: 1041, 1947.
31. *Costas, R., Jr., García-Palmieri, M. R. and Feliberti, M.:* Morbidity and mortality surveillance in a prospective epidemiological study of coronary heart disease. Bol. Asoc. Méd. P. Rico 61: 207, 1969.

OPERATIONAL PROCEDURES AT THE PUERTO RICO HEART HEALTH PROGRAM CLINIC

Raúl Costas, Jr., MD
Manuel Feliberti, MD
Mario R. García-Palmieri, MD
Angel A. Colón, MD
Mercedes Cruz-Vidal, MD
Marcelino Cortés-Alicea, MD
Angel M. Ayala, MD
Rafael Sobrino, MD

Since the success of any prospective epidemiological study depends upon the continued cooperation of its participants, it is imperative that a system be established to insure a smooth and efficient operation from the time the subject first visits the clinic. This requires careful planning well before the scheduled visit and includes a number of procedures after the subject has left, so that he may remain responsive to a letter invitation for a further examination.

This paper describes the procedures which have been found to be effective in conducting an epidemiological study on coronary artery disease at the Puerto Rico Heart Health Program. This study includes a sample of 10,000 males aged 45 to 64 residing in selected urban and rural areas in the Northeast Medical Region of Puerto Rico.

Appointment and Response Status Card System

Subjects to be examined will receive an appointment through the mail. In order to keep an adequate accounting of the appointments sent and the responses obtained an Appointment and Response Status Card (A & R) card system has been established.

At the time that the first appointment letter to a subject is prepared, an A & R card is made up. These cards are filed by appointment date and are moved in the file if this date is changed. If the appointment letter is returned by the Post Office, the card is pulled from the file and an effort made to contact the subject either by telephone or by field work. When a new appointment has been made, the A & R card is filed under the new date.

The day before the scheduled appointment the cards are used for making reminder telephone calls to subjects. Following this they are used for preparing the Daily List of Appointments, and for making up the records of subjects expected on the following day. These records will contain a complete set of pre-coded forms for the particular examination to be performed, each filled out with the initial identifying information (Appendix).

If subject comes in on the appointed date, his A & R card is appropriately marked and returned to the general card file by record number. If subject does not keep his appointment, the card is marked accordingly and re-routed for new appointment. After 3 appointments have been missed a field visit is made to try to have subject attend.

Interviews

As a subject comes in, the receptionist takes the appointment letter from him, checks the date of appointment, and checks his name in the Daily Report form. As she interviews each subject she assigns numbers in sequence starting with number one. She then verifies subject's name, address, and age, the latter being checked against the date of birth. The information is filled in on the record forms. If the file card is incomplete or incorrect, it is set aside for modification after all subjects for that session have been entered. All the other information on the Identification Form is filled in.

The receptionist now prepares the identifying labels for the laboratory specimens and fills out an electrocardiogram (ECG) mounting folder. An identification card is made out and laminated.

The subject and his record are taken to the waiting area, and he is ready for examination.

A complete examination includes: social interview; dietary interview, blood and urine laboratory studies; anthropometric measures and vital capacity; ECG; medical history and physical examination; and final check-up of record.

From the Department of Medicine, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico.

This study was supported by Contract No. PH-43-63-620 of the National Heart Institute of the U. S. Public Health Service.

A special rubber stamp is applied to the outside of each folder showing the various stations through which subject must pass. As each interview is completed, the appropriate section of the stamp is initialed, so that at any time during the examination a glance will show which stations any subject has been through.

Each of the interviewers examines the records in the waiting area at frequent intervals, selects the one with the lowest sequential number for which his particular interview is missing, calls him into his office, identifies him and carries out the interview, filling out the appropriate form.

The three interviews which require disrobing (nurse, ECG, and physician) are usually performed in sequence, the physician always being last. Blood is drawn before subject is seen by physicians. The first six subjects usually undergo this portion of the examination first, while subjects with higher numbers may start with other interviewers.

Either the nurse taking the anthropometric measurement or the one taking the ECG, whichever gets the subject first, is responsible for showing him to the dressing cubicle and having him strip to the waist. At the completion of the physical examination the physician will ask subject to resume his clothes.

Electrocardiograms are read by the study cardiologists in rotation (1). As each tracing is mounted, it is placed in a receptacle outside the ECG office from where it is obtained by the reader. After each ECG interpretation has been coded on its form, the form is placed in a second receptacle in the examining area, where it will be available to the examining physicians, while the actual tracing is returned to the record clerk for re-insertion in the record.

Any subject who has a history suggestive of any form of coronary heart disease (CHD) or significant heart murmurs is seen independently by a second examiner, who makes his own evaluation of the findings.

After a subject has been through all the interviews the record clerk reviews the record in his presence to verify that all blanks have been filled in properly. For any item that was not answered she either asks the question herself or refers the subject back to the appropriate interviewer. When the record is complete she gives subject his identification card and dismisses him. The entire examination process takes approximately 80 minutes.

Further Itinerary of Records

A number of additional steps are necessary after subject leaves before a record is complete. The social investigator assigns a family unit number which is the same for all brothers who are children of the same parents. Any diet forms which had been kept by the dietitian for the purpose of calculating the composition of unusual foods consumed by a subject are returned by her to the record as soon as the calculations are complete, usually on the same day.

A statistical clerk checks each record for any history of hospitalizations or electrocardiograms taken outside the study, and the information is entered in a Hospitalization File Card. The clerk then scrutinizes each record for internal consistency to eliminate any possible discrepancy in the information written on the various forms.

The laboratory form is removed from each record and filed separately by date of examination until the laboratory results become available (in approximately two weeks), when they are transcribed onto the form and the latter returned to the record.

When those records that need medical review have been to a review session, all the records for one month are sent to the Data Processing Center for key-punching.

Review Sessions

Review sessions are usually held once a week. They are attended by all study physicians (including at least 3 cardiologists) and the statistician.

Records reviewed are those which have positive or questionable entries for CHD in the study history form, positive or questionable myocardial infarction by ECG, or a positive or questionable diagnosis of CHD in the Clinical Impression Form.

One of the physicians presents the history of the patient, and a tentative diagnosis is made by the group on that basis. If there was more than one examiner, each examiner's history is presented separately; and the group reaches a decision on each history on the basis of the established criteria, regardless of the opinion of either examiner (2).

The following scheme is used in arriving at a final conclusion when the histories of the two examiners disagree:

1. If one history is positive and the other nega-

tive, the final conclusion is questionable.
2. If one history is positive and the other questionable, the final conclusion is positive.
3. If one history is questionable and the other is negative, the final conclusion is negative.

After a diagnosis has been made on the basis of history, the physical findings are given, and the ECG is passed around for scrutiny. The tracing is re-evaluated applying our criteria, and any revisions of or additions to the diagnosis are made on this basis. Cases with a history positive for myocardial infarction and a negative ECG are classified as coronary insufficiency.

Finally the laboratory results are presented and further clarification of the diagnoses is made in light of the additional findings.

For each item considered the statistician makes an entry in the appropriate box for the item in a Coronary Status form. The actual values of serum glutamic oxaloacetic transaminase or lactic dehydrogenase are entered in the boxes. This form is used for all reviews of study examinations, for all hospitalizations diagnosed as definite or possible CHD, and for all deaths in which CHD was present or diagnosed (3).

When a study record is reviewed, the CHD diagnosis on the Clinical Impression code sheet is changed if necessary to conform to the final diagnostic decision made at review.

Letters and Case Summaries

When records return from key-punching they are distributed to the physicians who examined the subjects. The physicians study each record and decide the type of letter to be sent to each subject. If abnormalities were found, a letter is sent to the subject's personal physician or appropriate government health center as well.

The following form letters are in use:

Pt:1 to a subject, stating that no abnormality was found.

Pt:2 to a subject, stating that an abnormality was found of which he was already aware.

Pt:3 to a subject, urging him to visit his personal physician with respect to the study findings. (This letter is used when an abnormality is found of which the subject was not aware).

Pt:3a to a subject, stating that a minor abnormality was found, of which he was not aware.

MD:X a transmittal letter to a subject's physician, explaining the nature and scope of the study. (This letter is used whenever results are to be sent to a personal physician).

MD:1 Summary form for results; not generally used. (This form is used only when results are requested by a physician on a subject who was found by the study to be normal.)

MD:2 Summary form for results to a physician; used when a Pt:2 letter is sent to a subject.

MD:3 Summary form for results to a physician; used when a Pt:3 or Pt:3a letter is sent to a subject.

After the letters are mailed the records are returned to the statistical section, where they are filed in numerical order. The record will contain only the Summary of Findings form, the forms for the current examination, and date of interim hospitalizations. All other forms and papers are removed to the dead file.

Personnel

For an established load of 20 subjects per day the personnel used consists of an appointment clerk, a receptionist, two social investigators, two dietitians, two nurses, an ECG technician, four examining physicians, four laboratory technicians, a statistician and two statistical clerks. Besides we have administrative, secretarial, janitorial and field workers.

Summary

The success of any longitudinal epidemiologic study depends in large part on the continued cooperation of its participants. To promote this a smooth effective operation of the examination clinic is vital. A description is made of the various procedures that must be performed before, during and after a subject's visit in order to ensure effectiveness. An examination encompassing identification, social and dietetic interviews, anthropometric measures, medical history and a comprehensive physical examination, ECG, vital capacity determination, and drawing of blood for laboratory tests is accomplished in approximately 80 minutes. Diagnoses of coronary heart disease must be confirmed at a critical review session with all study physicians including at least two cardiologists present. The personnel required to perform the exa-

mination is listed.

References

1. *García-Palmieri, M. D., Costas, R., Jr., Cruz-Vidal, M., and Cortés-Alicea, M.:* The electrocardiographic criteria in a population study on Ischemic Heart Disease in Puerto Rico, Bol. Asoc. Méd. P. Rico 61: 190, 1969.
2. *García-Palmieri, M. R., Costas, R., Jr., and Colón, A. A.:* The criteria for diagnosis of disease in a cardiovascular epidemiological study: The Puerto Rico Heart Health Program. Bol. Asoc. Méd. P. Rico 61: 184, 1969.
3. *Costas, R., Jr., García-Palmieri, M. R. and Feliberti, M.:* Morbidity and Mortality Surveillance in a prospective epidemiological study of Coronary Heart Disease. Bol. Asoc. Méd. P. Rico 61: 207, 1969.

THE CRITERIA FOR DIAGNOSIS OF DISEASE IN A CARDIOVASCULAR EPIDEMIOLOGICAL STUDY: *The Puerto Rico Heart Health Program*

Mario R. García-Palmieri, MD
Raúl Costas, Jr., MD
Angel A. Colón, MD

Epidemiological studies are oriented towards obtaining information in regard to incidence and prevalence of disease in populations rather than towards diagnosing disease in specific individuals. In a prospective epidemiological study a population is selected for observation. Each individual selected is examined at the beginning of the study and classified as having the disease or as free of disease. Those who have the disease constitute the prevalence of the illness. Those who are free of disease constitute the population at risk.

The "free of disease" are observed over a period of time. At the end of this period, a second examination is performed and the population at risk separated into those that developed the disease and those remaining free of disease. Those who have developed the disease during the period of observation constitute the incidence. The presence of new disease can then be correlated to the characteristics of the population that have been studied.

In these studies methodological problems occur with respect to design, measurements, specific criteria and data analysis. Special consideration has to be given to the establishment of reliable clinical criteria for diagnosis of disease in order to guarantee a high degree of diagnostic consistency that will permit a sound scientific correlation of the characteristics of the population with the specific disease entities under study. These criteria must be clearly outlined, easily derived, and dependent on the basic information gathered at the time of the initial examination. Due to the large number of people to be examined, epidemiological studies usually do not permit the performance of time consuming and expensive refined technical diagnostic procedures such as angiocardiography and cardiac catheterization. The clinical criteria will many times depend upon a good history, physical examination and the information obtained from non expensive easily administered technical procedures such as electrocardiography.

The Puerto Rico Heart Health Program has been oriented primarily to detection of ischemic heart disease, hypertension and cerebrovascular disease in approximately 10,000 males aged 45 to 64. Besides establishing the criteria for the diseases above additional criteria have been used for the diagnosis of related or unrelated diseases that can be diagnosed in light of the clinical information, physical examination and laboratory tests performed in each individual of the population studied.

Our criteria are derived from several sources: (1) criteria that have already been used in other epidemiological investigations specially the Framingham study (1-3), (2) modifications of the Nomenclature of the New York Heart Association (4), (3) recommendations of the World Health Organization (5-6), (4) recommendations of conferences sponsored by the American Heart Association and United States Public Health Service (7-8), and (5) we have designed and adopted additional criteria not previously reported in epidemiological studies of this type. Usually unquestioned clinical diagnoses based on the fulfilled criteria have been labeled as "definite". Cases where the information available makes the diagnosis highly suggestive but not diagnostic have been called "possible".

The purpose of this communication is to present the criteria for diagnosis of disease in use at the Puerto Rico Heart Health Program. This information may be used for reference in future publications and also by other investigators interested in specific clinical criteria for conducting epidemiological research.

Our clinical criteria include ischemic, hypertensive, rheumatic, syphilitic, congenital, pulmonary and other heart disease, cerebrovascular disease, peripheral vascular disease, and diabetes mellitus.

The classification is as follows:

From the Department of Medicine, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico.

This study was supported by Contract No. PH-43-63-620 of the National Heart Institute of the U. S. Public Health Service.

I. DETAILED CRITERIA FOR CLINICAL MANIFESTATIONS OF CORONARY HEART DISEASE (1-3)

A. *Angina pectoris:* Three or more of following:
Substernal location
*Short duration - under 15 minutes.
*Related to exertion or excitement.
Relieved by rest or nitroglycerin.
Character - "oppressive, constrictive".
Radiation - Arms, neck, jaw.
**Essential features plus one other.*

B. *Myocardial Infarction:*
1. **Clinical history of prolonged "ischemic" chest pain.*

Characteristics of angina pectoris noted above, but unrelated to exertion.
Lasting more than 15 minutes.
Associated with symptoms of peripheral vascular collapse (often but not necessarily).
**May be used alone for "possible" diagnosis; 2 or 3 must be present also for "definite" diagnosis.*

2. *Electrocardiographic evidence of myocardial infarction.*
*(a) Development of "pathological Q-waves" (.04 seconds duration).
*(b) Loss of "R-wave potential" in precordial leads - otherwise unexplained.
(c) Associated S-T elevation.
(d) Late inversion of T-waves
(e) Evidence of evolution.

3. *And/or evidence of muscle necrosis by enzyme studies.*
SGOT - 60 and over B. B. units definitely positive; 40-59 units doubtful; under 40 units negative.
LDH - to be determined according to the laboratory in question.
**Essential criteria.*
Note: History alone without ECG or enzyme evidence of myocardial infarction not acceptable.

C. *Coronary insufficiency syndrome:*
1. Clinical manifestations of myocardial infarction without definite evidence of myocardial infarction (muscle necrosis). No "Q-waves in electrocardiogram; no "enzymes" abnormal.
2. Electrocardiographic evidence of *Transient* electrocardiographic changes of "ischemic" (i. e., current of injury of S-T elevation or S-T depression and T-wave inversion.) But no evidence of loss of R-wave potential.

D. *Sudden unexpected death:*
Death documented to have probably occurred in a matter of minutes* in a subject who was apparently well (not suffering from some potentially fatal disease) and for which there is no other reasonable explanation.
**Operationally. Death occurring within one hour of the initial symptom. (It requires some time for the physician to arrive and determine that the patient is actually dead).*

DIAGNOSTIC CRITERIA FOR CORONARY HEART DISEASE

1. Post Mortem
2. "Clinical"
a) For evaluation of coronary heart disease existing at time of death.
b) For evaluation of cause of death.

I. EXISTENCE OF CORONARY HEART DISEASE

Post Mortem:
1. Recent or old *occlusion* of coronary artery with or without infarct.
2. Recent myocardial infarct - microscopically defined.
3. Old, healed myocardial infarct - microscopic scar with associated coronary arteriosclerotic involvement.
4. Exclude diffuse, focal myocardial scarring or arteritides.

Clinical:
1. *Sudden death.* Unexpected death occurring in a matter of minutes in someone apparently well, not suffering from some potentially fatal disease; no other apparent explanation available. (See detailed criterion D). Exclude if postmortem examination is done and reveals no significant degree *of coronary atherosclerosis.
**(greater than 50 percent narrowing of one major coronary vessel.)*
2. *Coronary heart disease - Death non-sudden.*
Death in a setting of coronary heart disease previously established with no other explanation, i. e., congestive heart failure, shock, etc. Include in this category sudden death occurring in patient with an acute myocardial infarction or a previously documented myocardial infarction who was doing apparently well.
3. *Myocardial infarction.* (See detailed criteria B 2,

3.)
Electrocardiographically documented acute or old myocardial infarct.
Enzyme evidence (elevated SGOT, SGPT, LDH) associated with clinical history compatible with a myocardial infarction.

4. *Angina pectoris.* (See detailed criteria A.)
Must be agreement of two reviewers.

5. Do not accept congestive heart failure without apparent cause. Congestive heart failure occurring in patient with a history of angina pectoris may be accepted if no other explanation is available.

II. CORONARY HEART DISEASE AS CAUSE OF DEATH

Post Mortem:

1. Evidence of recent, acute myocardial infarct or arterial occlusion by recent thrombus or subintimal hemorrhage.
2. Embolic disease in presence of acute myocardial infarct with mural thrombus.
3. Evidence of very severe *coronary arteriosclerosis with or without old occlusion or infarction as the only explanation for a cardiac death.

**(Greater than 50 percent narrowing of a major coronary vessel.)*

a) Possible - If no clinical findings.
b) Definite - Sudden death, congestive heart failure; history of ischemic chest pain.

Clinical:

1. Sudden death. See above definition. Criteria identical to determination of *existence* of coronary heart disease.
2. Coronary heart disease death, non-sudden. See above explanation.
3. Myocardial infarct: death during course of a documented acute myocardial infarction (even if it is a "sudden death" in a patient with a myocardial infarction, doing well).

2. HYPERTENSION AND HYPERTENSIVE HEART DISEASE (7)

A. Normal Blood Pressure - Both readings less than 140/90
B. Hypertension - Both readings 160 mm Hg. systolic and/or 95 mm Hg. diastolic
C. Borderline Hypertension (Anyone below)
a) Borderline band of 140-159 mm Hg. systolic and/or 90-94 mm Hg. diastolic on both readings.
b) One abnormal and one borderline reading.
c) One normal and one borderline reading.
d) One normal and one abnormal reading.

D. Hypertensive Heart Disease
*a) Hypertension as defined in B.
*b) Cardiac involvement manifested by one of the following:
1. Point of maximal impulse 1 cm. to the left of the mid clavicular line.
2. ECG evidence of left ventricular hypertrophy.
3. Cardiac failure in the absence of other causes of congestive heart failure.

** Essential features*

E. Borderline Hypertensive Heart Disease
a) Definitely abnormal blood pressure (as defined under B) and questionable left ventricular hypertrophy by ECG.
b) Definite left ventricular hypertrophy by ECG and borderline blood pressure.
c) Borderline blood pressure and questionable left ventricular hypertrophy by ECG.

F. Hypertensive Heart Disease - Outside criteria. History of hypertension under treatment found to have normal or borderline blood pressure with evidence of cardiac involvement not attributable to other recognizable disease.

3. RHEUMATIC HEART DISEASE

1. Heart involvement
a) cardiomegaly
b) murmur *
1. all diastolic
2. systolic of grade 3/6 or greater
c) heart failure
d) atrial fibrillation
in an individual with a confirmed history of rheumatic fever in the absence of other recognizable cause of cardiac disease.

** murmur is essential*

2. Presence of mitral stenosis as determined by physical examination
* a) diastolic murmur with presystolic accentuation
** b) accentuated M_1
** c) Opening snap
Supplemented by electrocardiographic findings (atrial hypertrophy, right ventricular hypertrophy)

** Alone - establishes diagnosis*
*** Two needed in order to make the diagnosis*

3. Both examiners believe that there is aortic stenosis and insufficiency by auscultatory findings as described in 1 consistent with the diagnosis.
4. A grade 3/6 systolic murmur at the apex with

evidence of left ventricular hypertrophy and/or left atrial enlargement by ECG in the absence of another recognizable cause of cardiac disease.
5. Both examiners believe there is evidence of aortic and mitral valvular involvement on basis of murmurs described above.

QUESTIONABLE RHEUMATIC HEART DISEASE

1. Presence of a grade 2/6 systolic apical murmur with history of rheumatic fever but no other manifestations of heart involvement.
2. One examiner only believes that there is aortic stenosis and insufficiency and the other does not or questions it.
3. Atrial fibrillation without a murmur in a patient with a confirmed history of rheumatic fever.
4. One examiner only believes there is evidence of aortic and mitral involvement and the other does not or questions it.

4. SYPHILITIC HEART DISEASE

1. History of infection, positive serologic tests for syphilis or definite evidence of syphilitic disease elsewhere in the body (gumma, tabes)
2. Aortic insufficiency
   a) diastolic murmur *
   b) congestive failure in the absence of another disease to explain it.
   c) left ventricular hypertrophy by ECG.
   d) Point of maximal impulse 1 cm. beyond the midclavicular line.
   e) wide pulse pressure (pulse pressure of 60 mm Hg and diastolic not higher than 60 mm Hg.)

1 & 2 required for diagnosis of syphilitic heart disease.

** Essential for diagnosis of aortic insufficiency plus at least another from* b *to* e.

5. CONGENITAL HEART DISEASE

1. Both examiners independently agree that they are dealing with a congenital cardiovascular defect and that acquired valvular heart disease as defined above can be excluded.

6. PULMONARY HEART DISEASE

*1. Positive history and/or physical findings of severe pulmonary disease of any kind.
*2. Electrocardiographic findings of right ventricular hypertrophy in the absence of rheumatic or congenital heart disease.

** Essential*

QUESTIONABLE PULMONARY HEART DISEASE

Positive history and/or physical findings of severe chronic pulmonary disease of any kind, no ECG findings of right ventricular hypertrophy but with findings of right sided failure in the absence of another disease to explain it.

7. OTHER HEART DISEASE

A- Definite - both examiners agree that organic heart disease other than those above is present. This includes thyrotoxic, myxedematous, neoplastic, infectious, toxic, traumatic, metabolic, anemic, collagen, parasitic and primary myocardial disease.

B- Questionable

1. Both examiners believe that the patient does not fulfill the criteria above but that there are findings such as murmurs, ECG findings to make them suspect the presence of heart disease.
2. One examiner believes that there is definite other heart disease and the other examiner does not or questions it.

8. CRITERIA FOR DIAGNOSIS OF CEREBROVASCULAR DISEASE (8)

The diagnosis of cerebrovascular disease will be made on basis of

1. Evidence of focal brain disease
2. The temporal profile of the clinical syndrome

1. The focal character of brain disease will be the finding of neurologic signs such as hemiplegia, brachial or crural monoplegia, aphasia, hemihypesthesia or sensory disturbance in the face, arm or leg, homonymous hemianopia or monocular blindness, unilateral cerebellar ataxia, nystagmus, ocular or gaze paralysis, dysphagia and dysarthria.
2. The temporal profile of the clinical syndrome consists of:

   A- Intracerebral Hemorrhage
   1. Grossly bloody cerebrospinal fluid.
   2. Hypertension
   3. Rapid evolution of hemiplegia and other phenomena over minutes or hours.
   4. Onset generally during activity.
   5. Rapid progression to coma.
   6. Headache (if patient is sufficiently conscious to report his feelings).

   B- Subarachnoid Hemorrhage
   1. Sudden onset of severe headache.
   2. Stiff neck on forward bending, Kernig and Brudzinski signs.
   3. Grossly bloody cerebrospinal fluid.

4. Absence of focal neurologic signs.
5. A relatively transitory disturbance of consciousness.
6. Subhyaloid (preretinal) hemorrhages.

C- Infarction due to atherosclerotic arterial thrombosis

1. Prodromal episodes, "warnings" (recurrent cerebral ischemic attacks), often with recovery or improvement between attacks.
2. More gradual evolution with progression of individual symptoms over a period of minutes to hours or longer, or saltatory progression.
3. Relative preservation of consciousness.
4. Clear cerebrospinal fluid.
5. Rapid improvement at times.
6. Certain constellations of symptoms and signs; for example, lateral medullary syndrome, rarely seen with embolism.
7. Evidence of atherosclerosis elsewhere, especially coronary and peripheral vessels and aorta.
8. The presence of disorders commonly associated with atherosclerosis (hypertension, diabetes mellitus, xanthomatosis).

D. Cerebral embolus

1. The cerebrovascular symptoms have developed suddenly (within seconds or a few minutes).
2. Absence of prodromal manifestations in most cases.
3. Relative preservation of consciousness.
4. Clear cerebrospinal fluid.
5. Rapid improvement at times.
6. Focal neurologic signs or special arterial syndromes.
7. A source of emboli exists usually in the heart (either cardiac arrhythmia or infarction).
8. Evidence of recent embolism in:
   a) other organs (spleen, kidney, extremities, intestines, or lungs)
   b) several regions of the brain in different cerebrovascular territories.

SPECIFIC RECOMMENDATIONS FOR DIAGNOSIS

Definitive Intracerebral hemorrhage, subarachnoid hemorrhage, infarction due to atherosclerotic arterial thrombosis or cerebral embolus will be diagnosed when in light of the criteria above the majority of independent opinions in a review session of no less than four physicians agree on the diagnosis.

Probable intracerebral hemorrhage, subarachnoid hemorrhage, infarction due to atherosclerotic arterial thrombosis or cerebral embolus will be diagnosed when in light of the criteria above the majority of independent opinions in a review session of no less than four physicians agree that there is a probable or definite diagnosis of the specific cerebrovascular disease.

Cerebrovascular disease-type undetermined-When in light of the criteria above the majority of the independent opinions in a review session of no less than four physicians agree that there is a cerebrovascular disease present but that the majority do not coincide in the specific type.

Probable cerebrovascular disease-type undetermined-When in light of the criteria above the majority of the independent opinions in a review session of no less than four physicians agree that there is probable cerebrovascular disease present but that the majority do not coincide in the specific type.

9. CRITERIA FOR PERIPHERAL VASCULAR DISEASE.

A. Definite peripheral vascular disease

1. Definite intermittent claudication.
2. Amputation due to a definitive history of peripheral vascular disease (as given by subject).
3. Positive Ratschow's test plus either difference in temperature of the feet or an absent pulse in the same leg.

B. Possible peripheral vascular disease

1. Doubtful intermittent claudication plus either difference in temperature of the feet or an absent pulse in the same leg.
2. Doubtful Ratschow's test plus either difference in temperature of the feet or an absent pulse in the same leg.
3. Difference in skin temperature of the feet plus an absent pulse in the same leg as the colder foot.

10. CRITERIA FOR DIABETES

1. History of diabetes under therapy is *diabetes* irrespective of blood sugar level and urinalysis.
2. Fasting subjects with a blood sugar above 110 are diabetics irrespective of history and urinalysis.
3. Non fasting subjects with a blood sugar above 140 are diabetics irrespective of history and urinalysis.
4. Fasting subjects with a blood sugar of 110 or below without a history of treatment for diabetes and with definite glycosuria are doubtful cases.
5. Non fasting subjects with a blood sugar of 140

or less without a history of treatment for diabetes and with definite glycosuria are doubtful cases.

6. Doubtful glycosuria (traces) in subjects not fulfilling items 1, 2 & 3 are non diabetics.
7. Non fasting subjects with a blood sugar of 130 to 140 without glycosuria or a history of treatment for diabetes are doubtful cases.

Summary

The establishment of reliable clinical criteria for diagnosis of disease in order to guarantee a high degree of diagnostic consistency is essential in epidemiological studies. We have presented the clinical criteria used at the Puerto Rico Heart Health Program which include ischemic, hypertensive, rheumatic, syphilitic, congenital, pulmonary and other heart disease; cerebrovascular disease; peripheral vascular disease; and diabetes mellitus.

References

1. Report of the conference on longitudinal cardiovascular studies at the Hotel Beaconsfield, Brookline, Massachusetts, June 17-18, 1957.
2. *Dawber, T. R., Moore, F. E., Jr., Mann, G. V.: II* Coronary heart disease in the Framingham study. Amer. J. Pub. Health 47: 4, 1957.
3. *Kannel, W. B., Dawber, T. R., Kagan, A., Revotskie, N. & Stokes, J.:* III: Factors of risk in the development of coronary heart disease - Six year follow-up experience. The Framingham study. Ann. Intern. Med. 55: 33, 1961.
4. Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Blood Vessels. Criteria Committee of the N. Y. Heart Association, 5th Ed., New York, 1953.
5. Hypertension and coronary heart disease: Classification and criteria for epidemiological studies. First report of the expert committee on cardiovascular disease and hypertension. WHO Tech. Rep. Ser. No. 168, 1959.
6. Arterial hypertension and ischemic heart disease. Preventive aspects. Report of an expert committee. WHO Tech. Rep. Ser. No. 231, 1962.
7. Epidemiology of cardiovascular diseases: Methodology. Report of Princeton conference. Amer. J. Pub. Health, Suppl. 10: 50, 1960.
8. U. S. Public Health Service: A classification and outline of cerebrovascular diseases. Neurology 8: 1, 1958.

THE ELECTROCARDIOGRAPHIC CRITERIA IN A POPULATION STUDY ON ISCHEMIC HEART DISEASE IN PUERTO RICO

Mario R. García-Palmieri, MD
Raúl Costas, Jr., MD
Mercedes Cruz-Vidal, MD
Marcelino Cortés-Alicea, MD

The electrocardiogram is one of the basic tools used in the study of patients with cardiovascular disease. Although its value as a screening devise for underlying heart disease in population studies was originally questioned (1-3), better designed studies (4-7) have established that it is useful in the epidemiological study of coronary artery disease. Today it is considered essential for this type of epidemiological work (7). The electrocardiogram is easily obtained from a large number of individuals within a reasonably short period of time and provides an objective permanent record. The original tracing can be compared to future records in longitudinal studies, looking for incidence of disease.

In the epidemiological study of ischemic heart disease at the Puerto Rico Heart Health Program a "standard" resting electrocardiogram is obtained in the supine position from a direct writing machine calibrated so that 1 mV equals 1 cm. The twelve conventional leads are recorded, namely leads I, II, III, aVR, aVL, aVF and V_1 to V_6. Once the tracings are read the interpretation is recorded in specially designed precoded forms that are used for analysis with the help of computers. See appendix.

To be most effective, the reading of all electrocardiograms within a study should be done in light of previously established specific criteria made available to the electrocardiographers, in order to ensure internal consistency in the interpretation of the tracings. After a perusal of the literature, specific criteria, that have been widely used and accepted (6-37), were adjusted to our study and are employed by the cardiologists in charge of the interpretation of our electrocardiograms. Usually unquestioned electrocardiographic abnormalities were labeled as "definite", and abnormalities highly suggestive, but not specific for an electrocardiographic diagnosis have been classified as "possible".

In a prospective study of this type it is important to collect basic data that could be correlated later to incidence of disease. For this reason we have included diagnostic criteria not only for coronary artery disease but also for other important electrocardiographic alterations. This permits a more complete interpretation of electrocardiograms in a consistent way.

In our study the tracings are read without reference to the clinical data in order to guarantee that the readers adhere to the specified criteria and describe the electrocardiographic alterations as objectively as possible. Periodic double blind readings on a subsample are conducted among the three cardiologists reading the tracings in order to test the comparability of the interpretation and adherence to the criteria.

The purpose of this article is to present these criteria so that they will be available as a ready reference for future publications on this subject. We also aim to provide a simple workable classification obtained from heterogeneous sources of information that could be utilized by other investigators interested in reading electrocardiograms in a consistent way when dealing with population studies.

The criteria are organized under the following eleven headings: myocardial infarction and possible coronary insufficiency, left ventricular hypertrophy, right ventricular hypertrophy, bundle branch block, Wolff-Parkinson-White Syndrome, T-wave changes, ST segment changes, low voltage, axis deviation, intervals and heart rate, and serial electrocardiograms.

The classification is as follows:

1 - MYOCARDIAL INFARCTION

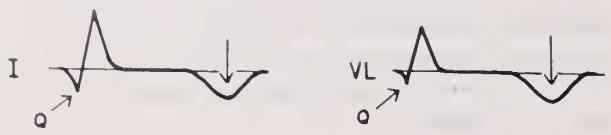
(Modified from First Report of the Expert Committee on Cardiovascular Diseases and Hypertension, World Health Organization (6))

From the Department of Medicine, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico.

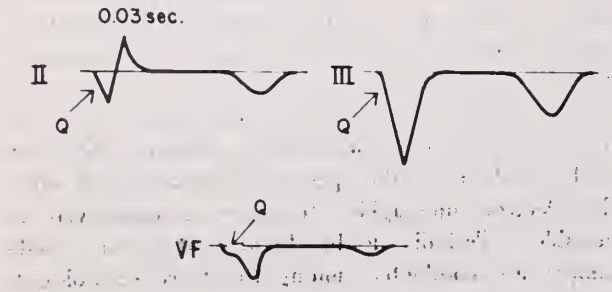
This study was supported by Contract No. PH-43-63-620 of the National Heart Institute of the U. S. Public Health Service.

A. DEFINITE MYOCARDIAL INFARCTION

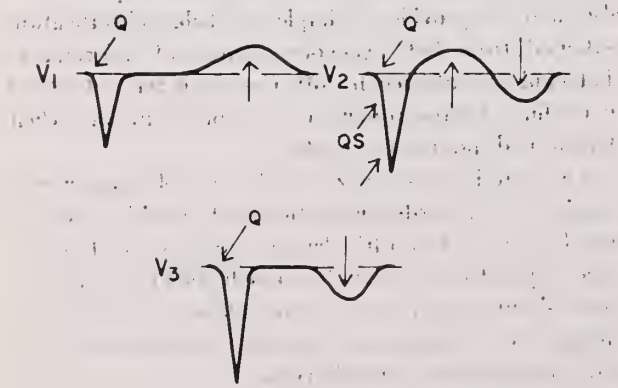
(a) Association of Q I not less than 20 percent of R I, and negative T I (a sign of anterolateral infarction which has to be confirmed by precordial leads, as illustrated in (e) and (d) below. VL is much like lead I.



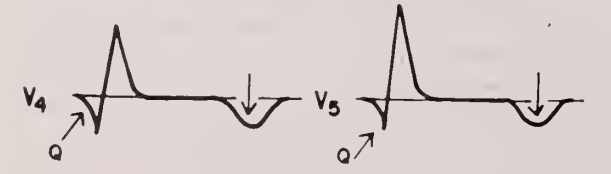
(b) Association of Q II negative T II, Q III negative T III, and Q VF. Q at least 25 percent of the largest standard R wave in III and not less than 0.03 sec. in II or III.

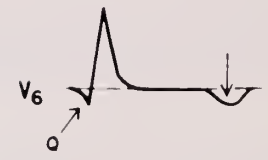


(c) Q waves in precordial leads V_1, V_2, V_3, and negative or diphasic T waves in V_2 and V_3 (QRS not exceeding 0.10 sec.). When no R present = QS configuration.

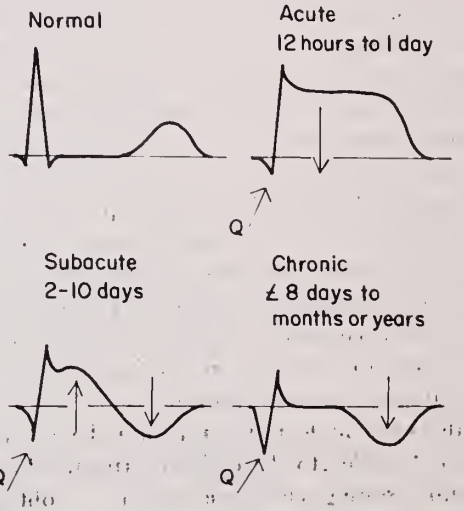


(d) Q waves more than 0.4 mV deep in precordial leads V_4 and V_5, and 0.2 mV in V_6, in association with negative T waves in those leads.





(e) Injury current - evolution and disappearance in three stages. Probability of myocardial infarction in any stage is almost 100 percent.

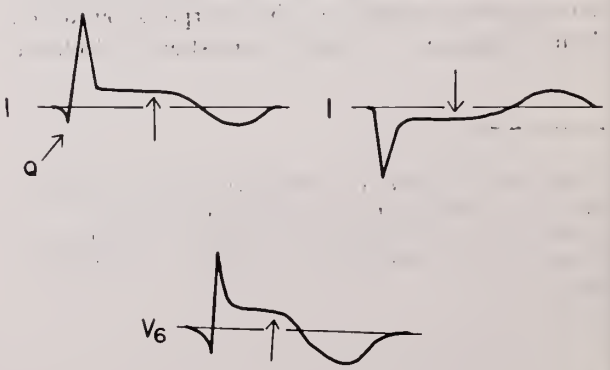


(f) Failure of progression of the R wave or decrease in the relative amplitude of the R waves in the precordial leads associated to inversion of the T wave.

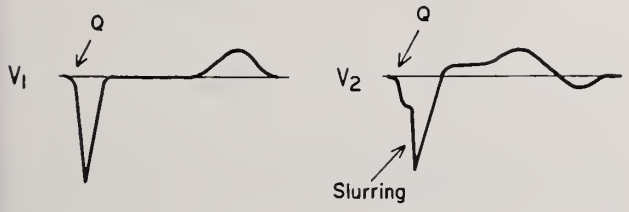
(g) An isolated AVL finding of a Q wave ≥ 0.04 sec., with a depth of > 50 percent of the amplitude of the following R wave, with upright P and T waves and an rS deflection in lead aVR.

B. POSSIBLE MYOCARDIAL INFARCTION

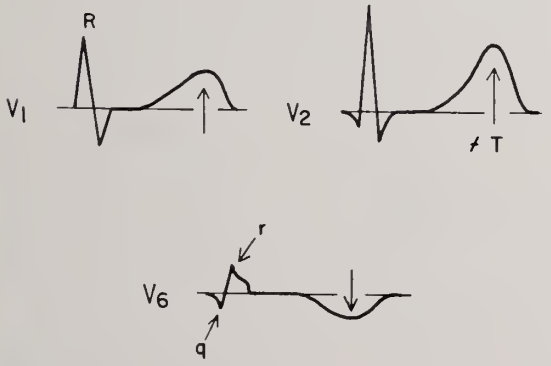
(a) Transient elevation or lowering of ST, more than 0.1 mV in I or V_1 to V_6. When persisting and more than 0.3 mV in I or V_5, V_6, suspicion of cardiac aneurysm. Typical QRS abnormalities should coexist.



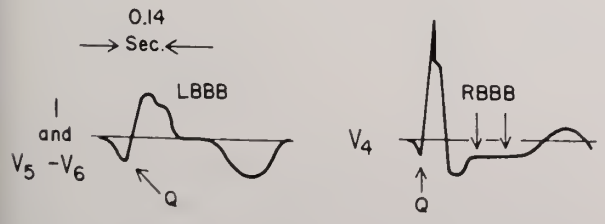
(b) Rudimentary Q II and Q III 25 percent of maximum R with negative T III, trivial Q VF.
(c) Q or QS with slurred downstroke in V_2 and/or V_3.



(d) Failure of progression of the R wave or decrease in the relative amplitude of the R waves in the precordial leads with upright T waves.
(e) High early R waves in V_1 without right hypertrophy or R.B.B.B. (a sign of postero-lateral myocardial infarction). In addition qr and negative T in V_6 and tall T waves in V_1 and V_2.



(f) Bundle branch block right or left plus suspicion of myocardial infarction owing to presence of additional Q waves.



C. OTHER CHANGES SUGGESTIVE OF MYOCARDIAL INFARCTION

These are temporal changes observed between electrocardiograms taken at different Puerto Rico Heart Health Program examinations.

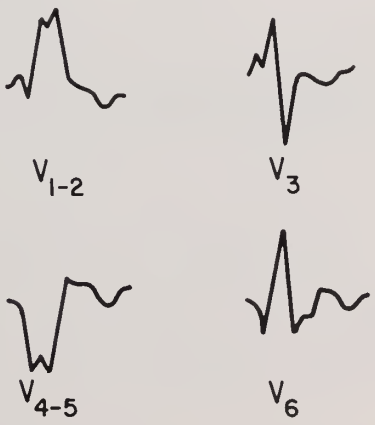
a. Appearance of q wave of 0.02 seconds or greater in all of leads II, III, and aVF.
b. Appearance of q waves of at least 1 mm. depth in any of leads I, aVF and V_1.
c. Appearance of QS in any of leads aVL, aVF and I.
d. Increase of septal R by at least 3 mm. in any of leads V_1 or V_2 when there are accompanying ST-T changes suggestive of "true posterior" myocardial infarction.
e. Ventricular premature beats with QR or Qr pattern in any of leads V_2 - V_6.

D. MYOCARDIAL INFARCTION IN THE PRESENCE OF RBBB

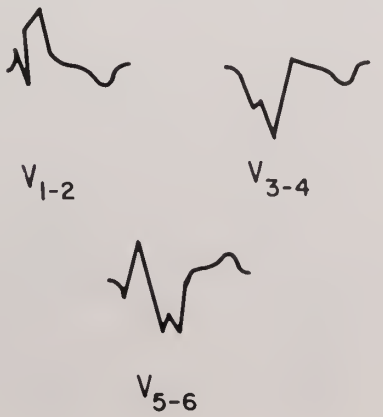
(Modified from Sodi-Pallares et al. (13))

1. DEFINITE

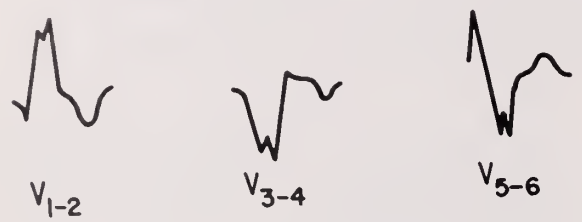
a) Changes of RBBB in V_1 and V_2 + QS or QR complexes in V_4 and V_5 or V_4 to V_6.



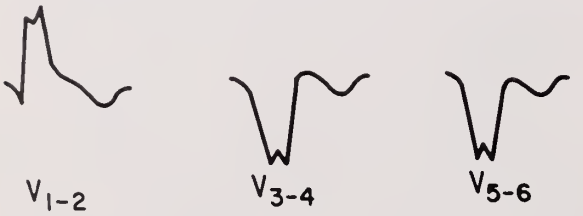
b) QS or QR complexes in II, III and aVF as per our criteria.
c) Changes of RBBB in V_1 and V_2 with QS complex and negative T wave in V_3 and/or V_4.



d) qR complex and inverted T wave in V_1 and V_2, QS complex with inverted T wave in V_3 and V_4, and absence of q wave in V_5 and V_6.



e) qR complex and inverted T wave in V_1 and V_2; QS complex with inverted T wave in V_3 to V_6.



2. POSSIBLE

a) qR complex with negative T wave in V_1 and V_2, absent q wave in V_5 and V_6.



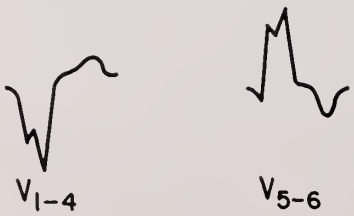
E. MYOCARDIAL INFARCTION IN THE PRESENCE OF LBBB

. . . (Modified from Sodi-Pallares et al. (13))

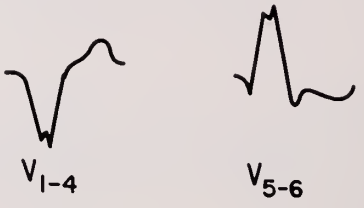
1. DEFINITE

a) QS or QR complexes in II, III and aVF as per our criteria.

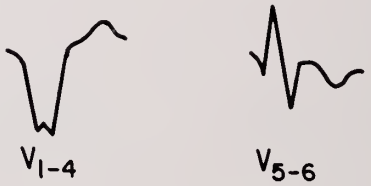
b) rS complexes with upright T wave from V_1 - V_4, with a q wave with slurred R and inverted T wave in V_{5-6}.



c) Slurred R preceded by negative deflections in V_5 and V_6; that is qRs complexes, with negative T waves in V_5 and V_6.



d) QS complex with positive T waves in V_{1-4} and qrS complexes with negative T waves in V_{5-6}.

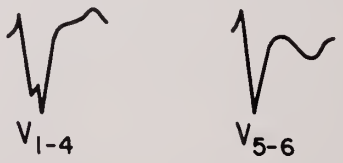


e) QS complexes with negative T waves from V_{1-6}, with LBBB changes in aVL and I.



2. POSSIBLE

a) rS complexes with upright T wave in V_{1-4} with small r and slurred S. RS complexes with negative T waves in V_{5-6}.



F. POSSIBLE CORONARY INSUFFICIENCY

The occurrence of inversion of the T wave in the normal QRS complex following a premature ventricular beat provided that the QRS complex preceding the premature beat had an upright T wave.

II. LEFT VENTRICULAR HYPERTROPHY

A. POSSIBLE

1. QRS voltage criteria alone
   * a) $R_I + S_{III} \geqslant 25$ mm
   * b) Rv_5 or $Rv_6 + Sv_1 > 35$ mm
   c) RaVL > 11 mm (in horizontal hearts)
   d) RaVF > 20 mm (in vertical hearts)
   e) $Sv_1 \geqslant 24$ mm
   f) Rv_5 or $Rv_6 > 26$ mm

   * *Either* a *or* b *establishes the QRS voltage criteria. Two of the items from* c *to* f *needed to establish the criteria.*
2. Delayed intrinsicoid deflection in absence of block. This means onset of intrinsicoid deflection in lead V_6 0.05 sec. or later after onset of the QRS interval.
3. Either *a* or *b* under 2 below.

B. DEFINITE
1. QRS voltage criteria + delayed intrinsicoid deflection as stated above.
2. ST and T wave changes
   * a) Lead aVL or aVF: flat, diphasic, or inverted T wave (with an R wave of 6 mm or more amplitude) plus 0.05 mm or more depression of ST segment.
   * b) Lead V_5 or V_6: ST segment depression and/or low or inverted T waves.

   * *Both needed*

C. SYSTOLIC AND DIASTOLIC OVERLOADING

To differentiate systolic and diastolic overloading the electrocardiogram must meet the requirements for definite left ventricular hypertrophy.

1. In systolic overloading the T waves are inverted and/or ST segment depressed in left precordial leads.

2. In diastolic overloading there is an upright T wave in V_5 and V_6 without opposition between the QRS vector and the T vector. The QRS voltage and delayed intrinsicoid deflection criteria must be present.

III. RIGHT VENTRICULAR HYPERTROPHY

A. POSSIBLE
1. QRS voltage criteria
   * a) R in $V_1 \geqslant 7$ mm
   * b) R/S ratio in $V_1 > 1$
   * c) S in V_5 or $V_6 \geqslant 7$ mm
   d) S in $V_1 \leqslant 2$ mm
   e) R in V_1 + S in V_5 or $V_6 > 10.5$ mm
   f) R in V_5 or $V_6 < 5$ mm
   g) R/S ratio in V_5 or $V_6 \leqslant 1$

   * *One enough*

   From d *to* g *at least two needed*
2. Delayed intrinsicoid deflection in the absence of block (onset of intrinsicoid deflection in V_1 0.04 sec. or later after onset of the QRS interval).

B. DEFINITE
1. R in aVR $\geqslant$ 5 mm.
2. R in $V_1 \geqslant 7$ mm + inverted T wave and/or depressed ST segment.
3. Right axis deviation + possible RVH by QRS voltage criteria.
4. Possible RVH by QRS voltage criteria + delayed intrinsicoid deflection in V_1 without block.
5. Right axis deviation + delayed intrinsicoid deflection in V_1 without block.

IV. BUNDLE BRANCH BLOCK

A. RIGHT BUNDLE BRANCH BLOCK
1. Complete - a rsR', rSR', RSR', RsR', rR' or RR' complex in V_1 or V_2 with a QRS lasting 0.12 sec. or more.
2. Incomplete - the same as above but the QRS lasting 0.11 sec. or less.

B. LEFT BUNDLE BRANCH BLOCK
1. Complete - a slurred broad R wave in V_5 or V_6 with a delayed, intrinsicoid deflection in association to a QRS interval lasting 0.12 second or longer.
2. Incomplete - slurred or notched QRS complexes in V_5 or V_6 with a QRS interval less than 0.12 sec. but at least 0.10 sec. in duration.

C. INDETERMINATE

When the QRS interval lasts 0.10 sec. or longer but the configuration does not fit in the right or left bundle branch block pattern.

D. OTHERS
1. Those with prolonged QRS interval to 0.11 sec. or more in which the initial and terminal QRS forces are divergent more than 60° in association to a definite myocardial infarction.
2. A pattern of complete left bundle branch block with a Q wave of 0.02 sec. in lead I and/or a 0.03 sec. Q wave in V_6.

V. *WOLFF-PARKINSON WHITE SYNDROME

1. The P R interval is 0.10 sec. or less provided the P waves are those of sinoatrial rhythm.
2. The QRS interval greater than 0.10 sec.
3. Notching or slurring (delta wave) of the QRS deflections occurring in the ascending limb if the major deflection is upward or in the descending limb if the major deflection is downward.

   * *Two criteria required: 1 is essential*

VI. T WAVE CHANGES

T waves - Are normally upright in I, II and V_3 - V_6, normally inverted in aVR and variable in III, aVL, aVF, V_1 and V_2.

Non specific - Flattened, diphasic or inverted T waves in those leads in which the T wave is normally upright, or upright T wave in aVR in the absence of associated QRS changes.

Secondary changes - T wave changes associated to other recognizable electrocardiographic abnormalities such as myocardial infarction, hypertrophy and bundle branch block.

Other changes:

1. Tall symmetrical upright T waves of 7 mm or more in height with normal QRS complexes, occurring in at least 2 precordial leads.
2. Symmetrical upright T waves less than 7 mm in height occurring in at least 4 precordial leads.

VII. ST SEGMENT

ST segment - Normally at the same level of the T-P segment.

Secondary changes:

Those associated with abnormalities of the preceding QRS complex.

Other:

1. Elevation of more than 1 mm in standard leads, more than 2 mm in one of the chest leads or depression of more than 0.5 mm in any lead.
2. A frankly horizontal ST segment or a sharp angle with the succeeding T wave in the presence of a normal preceding QRS complex.

VIII. LOW VOLTAGE

A. LIMB LEADS

None of the complexes in the standard limb leads is above 5 mm.

B. PRECORDIAL LEADS

The normal QRS amplitude will be 5 mm in V_1 and V_6; 7 mm in V_2 and V_5; 9 mm in V_3 and V_4. Values below these will be considered as low voltage of the precordial leads.

IX. AXIS DEVIATION

A. LEFT AXIS DEVIATION

When the mean frontal QRS axis is located at -30° or beyond it using as reference the hexaxial reference system.

B. RIGHT AXIS DEVIATION

When the mean frontal QRS axis is located at ± 91° or more using as reference the hexaxial reference system.

X. INTERVALS, HEART RATE

PR interval - Is measured from the beginning of the P wave to the beginning of the QRS complex.

Prolonged P R interval - Prolongation of the P R interval will be established according to the Ashman and Hull tables. The lead selected for measuring the P R interval shall be lead II.

Sinus bradycardia - Sinus rhythm with a rate less than 60 beats per minute.

Sinus tachycardia - Sinus rhythm having a faster rate than 100 beats per minute.

Sinus arrhythmia - A sinus rhythm with an irregularity in such a way that the longest and shortest P-P or R-R interval differ by 0.12 sec. or more. When sinus arrhythmia is present the average of the shortest and largest R R interval in lead II will be considered the heart rate.

When there is atrial fibrillation the ventricular rate coded will be an average of the ventricular rate obtained in the 3 standard leads.

The QRS interval will be measured in lead II.

XI. SERIAL ELECTROCARDIOGRAMS

A. GENERAL REMARKS

1. The appearance of one of the definite abnormalities not previously present or the disappearance of one of the definite abnormalities described on a previous electrocardiogram will be considered as definite other serial electrocardiographic changes.

2. The appearance of one of the possible abnormalities not previously present or the disappearance of one of the possible abnormalities described on a previous electrocardiogram will be considered as possible other serial electrocardiographic changes.

B. DEFINITE MYOCARDIAL INFARCTION

1. The development of a Q wave lasting 0.04 to 0.05 seconds in lead III and a Q wave is present in lead aVF (Not present in the previous electrocardiogram).

2. The development of a Q wave lasting 0.04 to 0.05 seconds in lead aVF not present in the previous electrocardiogram.

3. The development of a Q wave with an amplitude of 0.5 mV or more in any of leads III or aVF not present in the previous electrocardiogram

C. T-WAVE CHANGES

1. The occurrence of flattened, diphasic or inverted T waves in any of leads I, II, V_3 - V_6 in which the T waves were upright in the previous electrocardiogram will be considered definite non specific T wave changes.

2. The appearance of upright T waves in any of

leads I, II, V_3 - V_6 in which the T waves were flattened, diphasic or inverted in the previous electrocardiogram will be considered definite non specific T wave changes.

3. The occurrence of flattened, diphasic or inverted T waves in any of leads III, aVL, aVF, V_1 and V_2 in which the T waves were upright in the previous electrocardiogram will be considered possible non specific T wave changes.

4. The appearance of upright T waves in any of leads III, aVL, aVF, V_1 and V_2 in which the T waves were flattened, diphasic or inverted in the previous electrocardiogram will be considered possible non specific T wave changes.

5. Any change in amplitude of the T wave of 5 mm or more in leads I, aVL and V_4 - V_6 without change in voltage in the corresponding QRS complex will be considered possible non specific T wave changes.

D. AXIS CHANGES

1. When on serial electrocardiograms there is appearance of left axis deviation (QRS axis is located at -30°or beyond or of right axis deviation (QRS axis is located at + 91°or more), which was not previously present, this will be considered as definite other electrocardiographic changes.

2. Any change of axis of 30°or more in absence of other electrocardiographic findings to explain it will be considered as definite other electrocardiographic changes.

3. In case that the findings in QRS axis described in *a* and *b* above constitute the only changes in serial electrocardiograms the clinical interpretation will be at least doubtful.

Summary

Electrocardiography is one of the basic tools used in population studies for coronary artery disease today. To insure reproducibility of results, consistency, and a clear interpretation of the reported abnormalities specific criteria for interpretation of the tracings must be provided. After a perusal of the literature a classification of electrocardiographic abnormalities was established and has been presented in this paper.

References

1. *Ferguson, D. and O'Connell, J. T.:* Cardiovascular observations including a series of electrocardiograms of 1812 midshipmen without heart symptoms. U. S. Nav. Bull. 24: 860, 1926.
2. *Viscidi, P. C. and Geiger, A. S.:* Electrocardiographic observations on 500 unselected young adults at work. Amer. Heart J. 26: 763, 1943.
3. *Wood, F. C., Wolferth, C. C. and Miller, T. G.:* Electrocardiography in military medicine with special reference to its lack of value in the study of recruits. War. Med. 1: 696, 1941.
4. *Dawber, T. R., Kannel, W. B., Love, D. E., and Streeper, R. B.:* The electrocardiogram in heart disease detection: A comparison of the multiple and single lead procedures. Circulation 5: 559, 1952.
5. *Pollack, H. and Krueger, D. E.:* Epidemiology of cardiovascular diseases, Methodology. Amer. J. Pub. Health (supplement to Vol. 50, No. 10, 1960).
6. Hypertension and coronary heart disease: Classification and criteria for epidemiological studies. First report of the expert committee on cardiovascular disease and hypertension. W H O Tech. Rep. Ser. No. 168, 1959.
7. *Blackburn, H., Keys, A., Simonson, E., Rautaharju, P. and Punsar, S.:* The electrocardiogram in population studies. A classification system. Circulation 21: 1160, 1960.
8. *Massie, E., and Walsh, T. J.:* Clinical vectorcardiography and electrocardiography. 1st Ed. Year Book Publishers, Inc., Chicago, 1960.
9. *Marriott, H. J. L.:* Practical electrocardiography. 3rd. Ed., Williams & Wilkins Co., Baltimore, 1962.
10. *Lipman, B. S., and Massie, E.:* Clinical Unipolar Electrocardiography. 4th Ed. Year Book Publishers, Inc., Chicago, 1959.
11. Criteria Committee of the New York Heart Association: Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Blood Vessels. 5th Ed. New York Heart Association, 1953.
12. *Sodi-Pallares, D.:* New Bases of Electrocardiography. 1st. Ed. C. V. Mosby Co., St. Louis, 1956.
13. *Sodi-Pallares, D., Cisneros, F., Medrano, G. A., Bisteni, A., Testelli, M. R. and De Michelli, A.:* Electrocardiographic diagnosis of myocardial infarction in the presence of bundle branch block (right and left), ventricular premature beats and Wolff-Parkinson-White syndrome. Progr. Cardiov. Dis. 6: 107, 1963.
14. *Rodstein, M. and Gubner, R. S.:* Specificity and sensitivity of QRS voltage criteria to left ventricular hypertrophy. Amer. J. Cardiol. 13: 619, 1964.
15. *Manning, G. W. and Smiley, J. R.:* QRS voltage criteria for left ventricular hypertrophy in a normal male population. Circulation 29: 224, 1964.
16. *Grant, R. P. and Dodge, H. T.:* Mechanisms of QRS complex prolongation in man: Left ventricular conduction disturbances. Amer. J. Med. 20: 834, 1956.
17. *Levine, H. D., Lown, B., and Streeper, R. B.:* Clinical significance of postextrasystolic T wave changes. Circulation 6: 538, 1952.
18. *Cabrera, E. C. and Monroy, J. R.:* Systolic and diastolic loading of the heart: I. Physiologic and clinical data. Amer. Heart J. 43: 661, 1952.
19. *Myers, G. B., Klein, H. A. and Hiratzka, T.:* III. Correlation of electrocardiographic and pathologic findings in anteroposterior infarction. Amer. Heart J. 37: 205, 1949.
20. *Myers, G. B., Klein, H. A., and Hiratzka, T.:* IV. Corre-

lation of electrocardiographic and pathologic findings in infarction of the interventricular septum and right ventricle. Amer. Heart J. 37: 720, 1949.

21. *Myers, G. B., Klein, H. A., and Hratzka, T.:* II. Correlation of electrocardiographic and pathologic findings in large anterolateral infarcts. Amer. Heart J. 36: 838, 1948.

22. *Myers, G. B., Klein, H. A., and Stofer, B. E.:* I. Correlation of electrocardiographic and pathologic findings in anteroseptal infarction. Amer. Heart J. 36: 535, 1948.

23. *Myers, G. B., Klein, H. A., and Stofer, B. E.:* VII. Correlation of electrocardiographic and pathologic findings in lateral infarction. Amer. Heart J. 37: 374, 1949.

24. *Myers, G. B., Klein, H. A., and Stofer, B. E.:* The electrocardiographic diagnosis of right ventricular hypertrophy. Amer. Heart J. 35: 1, 1948.

25. *Rodríguez, M. I., Anselmi, A., and Sodi-Pallares, D.:* The electrocardiographic diagnosis of septal infarctions. Amer. Heart J. 45: 525, 1953.

26. *Sodi-Pallares, D. and Rodríguez, M. I.:* Morphology of the unipolar leads recorded at the septal surfaces: Its application to the diagnosis of left bundle branch block complicated by myocardial infarction. Amer. Heart J. 43: 27, 1953.

27. *Sokolow, M., and Lyon, T. P.:* The ventricular complex in left ventricular hypertrophy as obtained by unipolar precordial and limb leads. Amer. Heart J. 37: 161, 1949.

28. *Sokolow, M. and Lyon, T. P.:* The ventricular complex in right ventricular hypertrophy as obtained by unipolar precordial and limb leads. Amer. Heart J. 38: 273, 1949.

29. *Wolff, L., Mathur, K. S. and Richman, J. L.:* The diagnosis of posterior myocardial infarction. Amer. Heart J. 46: 21, 1953.

30. *Miguel, C., Sodi-Pallares, D., Cisneros, F., Pileggi, F., Medrano, G. A., and Bisteni, A.:* Right bundle branch block and right ventricular hypertrophy: Electrocardiographic and vectorcardiographic diagnosis. Amer. Heart J. 1: 57, 1958.

31. *Chapman, M. G. and Pearce, M. L.:* Electrocardiographic diagnosis of myocardial infarction in the presence of left bundle branch block. Circulation 16: 558, 1957.

32. *Wolff, L., Parkinson, J., and White, P. D.:* Bundle branch block with short P-R interval in healthy young people prone to paroxysmal tachycardia. Amer. Heart J. 5: 685, 1930.

33. *Pryor, R. and Blount, S. G.:* The clinical significance of true left axis deviation. Amer. Heart J. 72: 391, 1966.

34. *Griep, A. H.:* Pitfalls in the electrocardiographic diagnosis of left ventricular hypertrophy: A correlative study of 200 autopsied patients. Circulation 20: 30, 1959.

35. *McGregor, M.:* The genesis of the electrocardiogram of right ventricular hypertrophy. Brit. Heart J. 12: 351, 1950.

36. *Scott, R. C.:* The electrocardiographic diagnosis of right ventricular hypertrophy; correlation with the anatomic findings. Amer. Heart J. 60: 659, 1960.

37. *Soloff, L. A. and Lawrence, J. W.:* The electrocardiographic findings in left ventricular hypertrophy and dilatation. Circulation 26: 553, 1962.

METHODS AND QUALITY CONTROL OF LABORATORY DETERMINATIONS IN A PROSPECTIVE STUDY OF ISCHEMIC HEART DISEASE

Angel Alberto Colón, DSc, MD
Mario R. García-Palmieri, MD
Emilio Nazario, MS

Many substances have been suspected of playing a major role in the development of atherosclerosis and a great many of them have been or are being carefully studied in connection with coronary heart disease. Among these are included cholesterol, phospholipids, neutral fats or triglycerides, fatty acids, lipoproteins, catecholamines and uric acid. Trace metals such as copper, nickel, zinc and even boron are also suspects.

Correlations have been attempted between coronary heart disease and thyroid, pancreatic, suprarenal and gonadal function; dietary patterns; physical activity; obesity; stress; and smoking. The area of blood coagulability, including platelet fragility and adhesiveness, and that of alteration of the arterial tunica media have not been overlooked in this connection. The list of factors could be enlarged considerably, but those mentioned above are perhaps the most important ones.

Among these, and within the framework and limitations of an epidemiological study, it was necessary to select for the Puerto Rico Heart Health Program those tests most likely to throw light on the disease under study. Beside these laboratory tests, others, which reflect the general state of health of the participants, should be included such as determinations of hemoglobin, hematocrit, serology for syphilis, and of glucose and protein in urine.

The laboratory determinations selected for inclusion in our study were hematocrit, V. D. R. L., blood glucose, total cholesterol, triglycerides, glucose and protein in urine, serum lactescence, and optical transmission. Lipoprotein electrophoresis was added at a later date.

From the Department of Medicine, School of Medicine, University of Puerto Rico.

This study was supported by Contract No. PH-43-63-620 of the National Heart Institute of the U. S. Public Health Service.

Methodology

I. Collection of samples

A. Urine samples:

These samples are collected in clean, dry, properly labeled plastic cups and taken promptly to the collection area where they are picked by the laboratory technicians for analysis.

B. Blood samples:

The participant is asked to lie down on an examining table and blood taken preferably from the antecubital vein using sterile disposable needles (B-D number 20G 1 1/2"). Two number 3208 (20 ml Plain-Red Stopper) vacutainers and one vacutainer containing anticoagulants either a number 3204 KNH (5 ml-Blue Stopper) or a number 3204 PS (7 ml-Gray Stopper) are filled. The Blue or Gray Stopper tube is gently tilted up and down five times immediately and all three vacutainer tubes labeled and placed in a container in which they are taken to a refrigerator from which the laboratory technicians will remove them for analysis.

II. Handling of the samples

A. Urine samples:

These samples are taken to the laboratory where glucose and protein are determined directly as described later on. Whenever the direct test for protein is positive, the urine is centrifuged and again tested for protein. It is the result on the centrifuged sample that is recorded.

B. Blood samples:

The vacutainer tubes are removed from the refrigerator and handled as follows:

1. Vacutainer with anticoagulant (Blue Stopper).
   a. This tube is shaken gently, the stopper removed and two heparinized microhematocrit capillary tubes filled from it; one end of each capillary tube is sealed with plasticine and the hematocrit determined.
   b. The remaining blood in the tube is used

for the determination of glucose by the Nelson-Somogyi's method.

2. Plain tubes (Red Stopper)

The stoppers are removed from the tubes, the clot loosened, and the tubes centrifuged for 15 minutes at 2000 rpm. The serum is then decanted from the two tubes into a large test tube which is again centrifuged for 10 minutes at 2000 rpm. The twice centrifuged serum is subdivided into three portions in three small Pyrex test tubes. These portions are used as follows:

a. Portion "1" consisting of one ml is used for V. D. R. L. determination.

b. Portion "2" consisting of approximately 10 ml is placed in a Pyrex test tube of 15 ml capacity, stoppered, labeled, frozen and stored in a freezer for future use.

c. Portion "3" consisting of about 8 ml of serum is kept refrigerated and used for the determination of serum lactescence, light transmission, total cholesterol and triglycerides.

III. Recording of results

The results obtained in the above determinations are entered directly into the laboratory notebooks. The results are reviewed by the laboratory Supervisor, repeat analyses ordered whenever deemed necessary as specified under Quality Control and the values entered into a master laboratory book. The values are finally entered into a precoded Laboratory Code Sheet.

IV. Storage of frozen serum samples

As indicated before, a properly labeled 10 ml portion of serum from each participant is stored in a freezer. The samples are placed in wiremesh test tube racks in chronologic order. The exact location of each sample is entered into a card-file and in the Master Laboratory Book so that any sample can be readily located when needed.

V. Methods of analysis

A. Protein in urine

The method used is that employing Robert's reagent (1).

B. Glucose in urine

The colorimetric method of Folin and Wu (2) employing Clinitest tablets is followed.

C. Hematocrit

The microhematocrit method of Guest and Siler (3) using heparinized capillary tubes is employed.

D. V. D. R. L.

The method of the Venereal Disease Research Laboratories (4) is used.

E. Serum lactescence

This is a visual test performed by placing a portion of serum in a 12 x 75 mm Coleman A round cuvette and examining against a bright light. Any opalescence present is graded from zero (0), when there is no lactescence, to four (4) when the serum exhibits a very strong lactescence or turbidity. A very faint lactescence is given a rating of 1. The lactescence values of two (2) and three (3) are assigned to degrees of lactescence intermediate between one (1) and four (4).

F. Light transmission

This is an instrumental method to determine the turbidity of sera. The turbidity has been reported (5) as having a correlation with lipid content of sera.

Our method consists of placing about 5 ml of serum in a 12 x 75 mm Coleman A round cuvette and reading its optical transmission at 650 mm in a Coleman Jr. spectrophotometer set at 100 percent transmission with a water blank.

G. Blood glucose

The method of Nelson (6) modified by Somogyi (7) is employed.

H. Triglycerides (neutral fats)

The method of Van Handel and Zilversmitt (8) is used.

I. Total cholesterol

The single-reagent method of Huang and coworkers (9) is used. This method was evaluated in our laboratory and a report (10) published.

VI. Quality control

Determinations of glucose and protein in urine are performed in single assays; all positive results are repeated, the protein analysis being repeated on the centrifuged urine specimen. Also performed in single measurements are the determinations of V. D. R. L. lactescence and optical transmission. The hematocrit determination is performed in duplicate, and, whenever the results are too low (below 30 percent) or too high (above 52 percent) repeat duplicate determinations are made.

The more elaborate chemical analysis for glucose, triglycerides and cholesterol in blood are performed following special replications which depend on the work load of the laboratory at that moment.

A. Glucose

Glucose in blood is analyzed in single determinations, however, at least one sample is run in duplicate; any sample that assays too low (below 76 mg percent) or too high (above 135 mg percent) is repeated immediately in duplicate. Samples showing a positive test for glucose in urine are run in a 1:2 or 1:3 dilution depending on the level of glucose found in the urine.

Twice a week blood samples are submitted by the Institute of Health Laboratories* to our laboratory for analysis and the results compared with theirs. These results must agree within 5 mg percent. Samples from our laboratory are taken regularly to the Institute of Health Laboratories for comparison. Three known glucose standards are included with every group of samples analyzed and a calibration curve drawn.

** The Institute of Health Laboratories is the Central Laboratory of the Health Department of the Commonwealth of Puerto Rico. It conducts a quality control program for all clinical laboratories, private and public, that includes all the determinations performed in this Ischemic Heart Disease Program with the exception of triglycerides. The Institute is one of the Reference Laboratories collaborating with the NCDC in its Proficiency Testing Program.*

B. Triglycerides

This is the most elaborate and time-consuming of the chemical analyses performed. All samples are run in duplicate and the average of the two results recorded. Samples having duplicate results differing by more than 10 mg percent are again analyzed in duplicate and the values averaged with the correct result of the original pair. Daily inspection of the results frequently leads to requests for repeated duplicate analysis of samples that may appear too high, too low, or not in harmony with the visual lactescence and optical transmission of the sample. Periodically, samples are purposedly re-introduced by the laboratory supervisor with completely different identification.

Large pools of serum are prepared in our laboratory, subdivided into 2 ml portions in vials, capped, and stored frozen. These pools of serum are repeatedly analyzed and their triglyceride (as well as cholesterol) content ascertained. Samples of known triglyceride concentrations from these pools are introduced for analysis twice a week. This technique will show up any tendency toward a systematic drifting in the results as time passes by, thus alerting the staff and permitting prompt corrective measures. Overlapping in the use of a new pool as the old one nears its end is always done to insure continuity.

The National Communicable Disease Center (NCDC) in Atlanta, Georgia, has a nation-wide program for the control of the quality of work in clinical laboratories. They send samples out periodically for analysis by participating laboratories and the results are compared with those of high caliber reference laboratories. Our laboratory participates in this proficiency program to insure an impartial external quality control.

Periodic exchange of samples with other laboratories performing similar analyses such as the Framingham Heart Program and some of the NIH laboratories is also done.

Two double-blind samples are sent to the laboratory for analysis on a schedule designed by and known only to the program's statistician. These blind duplicates are samples from one individual but bearing two entirely different names and identification numbers. Five such samples are referred to the laboratory for every 100 participants in the study (5 percent double blind).

Together with every group of serum samples analyzed, a sample of pure corn oil (Mazola) is analyzed in duplicate as a reference standard.

C. Total Cholesterol

The first 15 samples analyzed every day are done in duplicate. Duplicate results not agreeing within 8 mg percent call for an immediate analysis of a triplicate and the two matching results averaged and the average recorded. Results are checked daily and samples with unusual values, too high or too low, are repeated. Some of the previously analyzed samples are sent again to be analyzed on a blind basis under different names and identification numbers.

Periodically, commercial samples of known cholesterol values are submitted to analysis. Serum samples are periodically taken to the Institute of Health Laboratories and samples received from them for analysis and comparison.

As described for triglycerides, samples from a large pool of serum are repeatedly and regularly analyzed for total cholesterol to prevent or correct drift. Again, as described for triglycerides, the laboratory participates in the NCDC Cooperative Cholesterol Standadization Program as part of its external quality control.

Besides, the laboratory participates in a special quality control program for triglycerides and cholesterol specifically designed and supervised by NCDC for the Epidemiologic Heart Disease Projects at Puerto Rico, San Francisco and Framingham. Also, as described for triglycerides, true double-blinds are introduced for cholesterol.

Each group of samples analyzed is accompanied by a standard cholesterol sample.

Summary

We have presented the methods and quality control measures of the laboratory determinations done at the Puerto Rico Heart Health Program. The laboratory procedures included in the study are hematocrit, V.D.R.L., blood glucose, total cholesterol, triglycerides, serum lactescence, serum optical transmission, lipoprotein electrophoresis, and glucose and protein in the urine.

References

1. *Todd-Sanford* "Clinical Diagnosis by Laboratory Methods" - Davidsohn and Wells, 13th ed., Saunders, Philadelphia, p 30, 1963.
2. *Folin, O., and Wu, H.:* A system of blood analysis. J. Biol. Chem. 38: 106, 1919.
3. *Guest, G. M. and Silver, V. E.:* A centrifuge method for the determination of the volume of cells in blood. J. Lab. Clin. Med. 19: 757, 1934.
4. Public Health Service Publication Number 411, 1955.
5. *Fuller, H.:* Sublingual heparin in hiperlipemia. Angiology 9: 311, 1958.
6. *Nelson, N.:* A photometric adaptation of the Somogyi method for the determination of glucose. J. Biol. Chem. 153: 375, 1944.
7. *Somogyi, M.:* A new reagent for the determination of sugars. J. Biol. Chem. 160: 69, 1945.
8. *Van Handel, E., and Zilversmidt, D. B.:* Micromethod for the direct determination of serum triglycerides. J. Lab. Clin. Med. 50: 152, 1957.
9. *Huang, J. C., Wefler, J. C., Chen, C. P., Wefler, V., and Raftery, A.:* A stable reagent for the Lieberman-Burchard reaction. Application to rapid cholesterol determination. Anal. Chem. 33: 1405, 1961.
10. *Colón, A. A., García-Palmieri, M. R., and Nazario, E. A.:* Evaluation of a new method for the determination of cholesterol in blood. Bol. Asoc. Méd. P. Rico 56: 371, 1964.

DIETARY INTERVIEWS IN AN EPIDEMIOLOGICAL STUDY OF CORONARY ARTERY DISEASE IN PUERTO RICO

Maresa Rodríguez, BS
Raúl Costas, Jr., MD
Edna Cordero, BS
Jeanne Tillotson, MS
Mario R. García-Palmieri, MD

Clinical studies have demonstrated that the level of serum lipids may be affected by the contents of the diet (1). It has also been shown that a high level of some of the serum lipids is associated with an increased risk of developing coronary heart disease (2). The mechanism whereby the latter effect is produced is far from clear, and various nutrients have been incriminated, ranging from different classes of fats (3), to protein deficiency (4), to sucrose (5).

One of the difficulties with dietary studies in the United States is that nearly everyone eats a diet high in fat and total calories. A recent pilot study conducted in Puerto Rico showed differences in dietary patterns between men residing in urban and rural areas, some of which were statistically significant (6). Furthermore, the Puerto Rican diet has been found to vary significantly from that in the U. S. in its content of protein, fat and carbohydrate (7). It seemed worthwhile, therefore, to include an evaluation of dietary habits in the epidemiologic study of coronary heart disease in Puerto Rico, known as the Puerto Rico Heart Health Program.

Because of the large number of subjects included in the study (close to 10,000), it was desirable to start with a dietary sampling technic which could be easily and quickly administered and still yield results that would be useful from the research point of view when analyzed by groups. Of the available technics in common use (8), the 24 hour recall of the previous day's diet was considered the most practical for the present purpose.

Previous dietary surveys in Puerto Rico (6, 9) have revealed that relatively few food items account for a major part of the total calorie intake. This situation facilitated the preparation of a pre-coded dietary interview form listing primarily the foods more commonly eaten (10). A second pre-coded form was designed as an overflow sheet on which the composition of less usual foods could be hand calculated.

When all subjects in the sample have had the dietary interview at the completion of the first examination cycle, a more formalized interview for the purpose of establishing each subject's usual food and meal pattern is held at the time of the second examination. For this purpose, the technic of Burke (11) is used. Because this interview is more time-consuming than the 24 hour recall method, it is performed on a sub-sample. This sub-sample may be increased to extend over several additional examination cycles until all subjects have had a chance of being examined by this technic.

This type of interview brings out a subject's qualitative and quantitative meal patterns and between-meal habits. Also it permits an attempt to integrate weekly and seasonal variations in order to obtain a representation of a long-term food pattern. Since food patterns in Puerto Rico are relatively uniform, the Burke technic should be unusually effective in this area. A pre-coded form which includes foods most commonly consumed in Puerto Rico was evolved for the interview (10). See appendix.

24-Hour Recall Interview

The interview begins with a brief exposition of its purpose. The subject is asked to recall in detail everything he has eaten during the previous 24 hours, including all meals and snacks. Food models are used in estimating the sizes of portions, making certain that the smallest size of serving consumed by the subject corresponds to the quantity listed in the Food column of the form.

Each time a serving of any food is mentioned by the subject, a tally mark is made in the Quantity column opposite the corresponding food. At the end of the interview the tally marks for each food are added together, and the sums are recorded in

From the Department of Medicine, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico.

This study was supported by Contract No. PH-43-63-620 of the National Heart Institute of the U. S. Public Health Service.

the Code column. If a subject mentions a food not included in the interview form, this is indicated in the Other foods item and the specific food listed in the Other Foods form for later hand calculation of its nutrient values.

The total number of meals eaten during the previous day is recorded. A snack eaten 30 minutes or more before or after a major meal is considered a separate meal. By "snack" is understood any food or drink, regardless of the quantity, such as black coffee with sugar, a coke, a piece of fruit, an alcoholic drink, etc.

In an attempt to estimate a subject's "usual" salt intake a number of specific foods high in salt content are mentioned, and his weekly consumption of these foods is noted. On the form the foods have been weighted as to relative salt composition, so that the product of the number of times per week the food is eaten and the weight number gives the number of "salt units" per week for that particular food. The weight figures for sodium represent only relative values based on previous determinations (12, 13).

Subject is asked whether the previous day's diet is a good representation of his usual intake. Before terminating the interview the dietitian makes a subjective appraisal of its reliability.

Burke Type Interview

In selecting candidates to undergo the Burke interview preference is given initially to subjects who have been found to have coronary heart disease on a previous examination and to rural subjects, provided that they are not on a special diet prescribed by a physician and that they are fasting when they come to the interview.

The nature of the interview and the reason for conducting it are explained to the subject. He is asked to recall his usual food intake over the space of one week. This is not any one particular week's intake but rather a listing of the foods he would be likely to ingest in the course of a typical week, including any seasonal variations. This food history is used by the dietitian as a general, not a specific, information source.

Following this, subject is asked about specific food items. He is questioned about kind of food, cooking methods, portion sizes, and frequency of ingestion, not only for the regular meals, but also for snacks. Food models are used as needed in estimating sizes of portions.

Using the information from the week's diet history, the dictitian is able to detect omissions or inconsistencies, and her questioning is then directed toward their solution. All of the questions in the entire interview as spontaneous; that is, they are not written down nor asked by rote.

All responses are entered in the pre-coded examination form. When necessary, portion sizes reported by the subject are converted to the units set up on the form. Unusual foods are listed separately in the form and their nutrient composition is hand calcualted.

After the subject leaves, the dietitian proceeds to total and code the amount of each specific food he eats by day, week or month.

Food Composition Tables

Those foods considered to be most commonly consumed by the population were listed initially in the pre-coded form for the 24-hour recall. After a number of these interviews were completed, it became evident that many more foods were in common use. This resulted in the inclusion of 39 additional foods in the pre-coded forms for the Burke interview.

For each type of interview a set of tables showing the nutritive composition of each food was calculated by the dietitian. Table I presents the set used for the Burke interview, since this is the more complete and updated of the two. Those groups of foodstuffs which are similar in composition, for example, different cuts of lean beef, raw vegetables, cooked cereals, etc., have been taken together, and only a mean value for each nutrient is given. For those foodstuffs which are a combined dish, for example, "pasteles", "alcapurrias", etc., a recipe has been worked out, and the total value is given in the table. All values correspond to the same portion or size of serving as is listed on the forms for each particular food, for example, beef, 1 oz., ice cream, 1/2 cup, egg, 1 medium.

Data Processing

All calculations referring to the foods on the forms are handled by computers. The information in the forms is punched on cards. The composition tables for both types of dietetic interviews are stored in the memory of the computer. All the calculated total nutritive values are worked and printed out by the machine (14).

TABLE I: FOOD COMPOSITION TABLE–BURKE DIETARY INTERVIEW
JANUARY 1969 REVISION

	FOOD CODE	CAL	FAT	PFA	MFA	SFA	CHOL	PRO	CHO	STR	SUC	OTHER CHO	ALCO	CAF
			gm	..... *decigram*			*mg*	*gm*	*gm*	*gm*	*gm*	*gm*	*gm*	*mg*
Lean beef	101	64	3.3	0.10	1.37	1.65	29.4	8.7	0.0	0.0	0.0	0.0	0.0	00
Medium fat beef	102	102	8.1	0.24	3.56	3.89	27.9	7.2	0.0	0.0	0.0	0.0	0.0	00
Liver	111	55	1.6	0.54	0.43	0.54	128.0	8.6	1.5	1.5	0.0	0.0	0.0	00
Kidney	112	46	2.1	0.16	0.89	0.90	150.0	6.3	0.4	0.4	0.0	0.0	0.0	00
Tripe	113	38	0.8	0.02	0.35	0.38	45.3	7.6	0.0	0.0	0.0	0.0	0.0	00
Lean pork	121	69	3.9	0.66	1.64	1.40	30.0	8.4	0.0	0.0	0.0	0.0	0.0	00
Medium fat pork	122	110	9.2	1.56	3.85	3.30	30.0	6.8	0.0	0.0	0.0	0.0	0.0	00
"Patas de cerdo"	123	124	9.2	1.56	3.86	3.31	30.0	10.2	0.0	0.0	0.0	0.0	0.0	00
Lean ham	124	70	4.1	0.70	1.72	1.48	24.4	8.3	0.0	0.0	0.0	0.0	0.0	00
Medium fat ham	125	80	6.7	0.62	3.10	2.32	24.4	4.8	0.0	0.0	0.0	0.0	0.0	00
Sausage	126	82	7.2	0.52	3.15	2.28	29.4	4.2	0.2	0.2	0.0	0.0	0.0	00
Bacon	127	42	3.6	0.35	1.75	1.19	8.0	2.1	0.2	0.0	0.2	0.0	0.0	00
"Pasteles"	128	416	29.6	3.53	13.15	10.91	31.7	10.6	27.4	25.0	0.0	2.4	0.0	00
Chicken & turkey	141	48	2.0	0.40	0.60	0.60	24.0	7.5	0.0	0.0	0.0	0.0	0.0	00
Fresh fish	161	51	2.6	1.05	0.47	0.95	28.0	7.0	0.0	0.0	0.0	0.0	0.0	00
Codfish	162	71	0.6	0.24	0.12	0.24	10.0	16.4	0.0	0.0	0.0	0.0	0.0	00
Canned fish	163	54	2.8	1.15	0.51	1.04	28.0	7.3	0.0	0.0	0.0	0.0	0.0	00
"Bacalaítos"	164	66	0.4	0.16	0.08	0.13	4.7	8.7	7.0	7.0	0.0	0.0	0.0	00
Shellfish	181	27	0.5	0.24	0.05	0.19	65.1	5.1	0.5	0.5	0.0	0.0	0.0	00
"Alcapurrias"	131	198	8.1	1.09	3.43	2.76	7.8	5.0	26.3	26.1	0.0	0.2	0.0	00
"Rellenos"	132	205	12.4	1.70	5.45	4.39	46.0	8.2	15.1	14.8	0.0	0.3	0.0	00
"Picadillo de carne"	133	128	11.6	1.64	5.14	4.14	11.7	5.6	0.2	0.0	0.0	0.2	0.0	00
"Pastelillos de carne"	134	144	7.8	1.06	3.49	2.81	7.7	4.4	14.1	14.0	0.0	0.1	0.0	00
"Pastelillos de queso"	342	114	4.9	0.42	1.91	2.35	12.2	3.4	14.2	13.9	0.0	0.3	0.0	00
Egg	201	75	5.5	0.50	2.50	2.00	275.0	6.1	0.3	0.0	0.0	0.3	0.0	00
Whole milk	301	20	1.1	0.07	0.36	0.61	3.3	1.1	1.5	0.0	0.0	1.5	0.0	00
Skim milk	321	10	0.0	0.00	0.00	0.00	0.9	1.1	1.5	0.0	0.0	1.5	0.0	00
Cheese	341	106	8.7	0.36	2.84	5.50	38.9	5.8	1.0	0.0	0.0	1.0	0.0	00
Ice cream	361	151	8.9	0.40	2.62	5.07	30.0	2.8	15.0	0.0	12.0	3.0	0.0	00
Sherbert	864	121	0.0	0.00	0.00	0.00	0.0	1.4	28.8	0.0	21.0	7.8	0.0	00
Coffee	901	00	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	74
Chocolate drink	921	8	0.0	0.00	0.02	0.02	0.0	0.1	1.8	1.0	0.8	0.0	0.0	00
Bread	401	84	1.6	0.21	0.69	0.50	0.0	2.3	15.0	14.5	0.5	0.0	0.0	00
Rice	421	90	0.1	0.03	0.04	0.02	0.0	1.8	20.6	20.6	0.0	0.0	0.0	00
"Pastas alimenticias"	441	54	0.4	0.18	0.12	0.06	0.0	1.8	10.7	10.7	0.0	0.0	0.0	00
Cooked cereals	461	60	0.6	0.26	0.19	0.11	0.0	1.9	11.7	11.7	0.0	0.0	0.0	00
Dry cereals	462	101	0.7	0.28	0.22	0.14	0.0	2.4	21.3	19.7	0.0	1.6	0.0	00
Legumes	501	48	0.3	0.00	0.00	0.00	0.0	3.2	8.2	8.2	0.0	0.0	0.0	00
Starchy vegetables	521	61	0.2	0.00	0.00	0.00	0.0	0.9	13.9	13.9	0.0	0.0	0.0	00
Cooked vegetables	541	15	0.1	0.00	0.00	0.00	0.0	1.0	2.6	0.0	0.0	2.6	0.0	00
Raw vegetables	561	10	0.1	0.00	0.00	0.00	0.0	0.6	1.8	0.0	0.0	1.8	0.0	00
Fruit Group I *	601	44	0.2	0.00	0.00	0.00	0.0	0.5	10.1	0.0	0.0	10.1	0.0	00
Fruit Group II *	602	78	0.6	0.00	0.00	0.00	0.0	0.8	17.4	0.0	0.0	17.4	0.0	00
Fruit Group III *	621	88	0.1	0.00	0.00	0.00	0.0	0.4	21.3	0.0	11.5	9.8	0.0	00
Avocado	641	42	3.3	0.30	1.50	0.60	0.0	0.4	2.6	0.0	0.0	2.6	0.0	00

Lard	701	45	5.0	0.50	2.30	1.90	5.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Bacon fat	702	45	5.0	0.75	2.40	1.60	9.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Butter	721	37	4.1	0.10	1.35	2.48	12.5	0.0	0.0	0.0	0.0	0.0	0.0	00
Margarine (hard)	741	37	4.1	0.90	2.35	0.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Margarine (soft)	761	37	4.1	1.45	1.55	.95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Olive oil	781	45	5.0	0.35	3.80	0.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Safflower oil	782	45	5.0	3.60	0.75	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Corn oil	783	45	5.0	2.80	1.40	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Soybean oil	784	45	5.0	2.60	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Cotton oil	785	45	5.0	2.50	1.05	1.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Mayonnaise	791	36	4.0	2.49	0.88	0.62	2.7	0.0	0.0	0.0	0.0	0.0	0.0	00
Plain cake	801	240	8.5	0.61	5.49	2.02	44.6	4.9	36.0	16.0	20.0	0.0	0.0	00
Cake icing	851	37	0.7	0.03	0.24	0.41	0.0	0.1	7.6	0.0	7.6	0.0	0.0	00
Fruit pie (lard)	802	363	19.5	2.31	8.85	7.04	16.6	3.9	43.0	27.0	8.6	7.4	0.0	00
Fruit pie (shortening)	803	363	19.5	1.78	12.18	4.43	0.0	3.9	43.0	27.0	8.6	7.4	0.0	00
Lemon pie	804	404	13.2	1.60	6.02	4.69	145.8	4.9	66.5	18.3	48.0	0.2	0.0	00
Custard	821	190	7.6	0.59	3.19	3.47	218.6	7.7	22.7	0.0	18.0	4.7	0.0	00
Bread pudding	822	212	7.1	0.34	2.64	3.72	84.1	5.2	31.9	7.9	14.1	9.9	0.0	00
Cookies	805	121	5.0	0.30	3.03	1.21	21.0	1.3	17.8	10.6	7.2	0.0	0.0	00
Jello	852	67	0.0	0.00	0.00	0.00	0.0	1.6	15.1	0.0	15.1	0.0	0.0	00
Doughnut	841	146	9.1	0.78	4.70	2.92	23.4	1.1	14.9	9.2	5.3	0.4	0.0	00
Sweet roll	842	157	4.6	0.63	2.31	1.53	20.0	4.2	24.6	18.5	5.2	0.7	0.0	00
Fruit paste	861	182	0.7	0.00	0.00	0.00	0.0	0.2	43.8	0.0	43.8	0.0	0.0	00
Jam & jelly	862	20	0.0	0.00	0.00	0.00	0.0	0.0	4.9	0.0	4.9	0.0	0.0	00
Chocolate candies	811	172	8.1	0.16	3.00	4.54	0.0	3.2	21.6	2.2	14.6	4.8	0.0	00
Hard candies	863	20	0.0	0.00	0.00	0.00	0.0	0.0	5.0	0.0	5.0	0.0	0.0	00
Soda	922	69	0.0	0.00	0.00	0.00	0.0	0.0	17.2	0.0	17.2	0.0	0.0	00
Cola	923	77	0.0	0.00	0.00	0.00	0.0	0.0	19.3	0.0	19.3	0.0	0.0	25
Beer	941	69	0.0	0.00	0.00	0.00	0.0	0.5	6.4	0.0	0.0	6.4	6.2	00
Liquor	942	78	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	11.2	00
Dry wine	943	26	0.0	0.00	0.00	0.00	0.0	0.0	1.3	0.0	0.0	1.3	2.9	00
Sweet wine	944	48	0.0	0.00	0.00	0.00	0.0	0.0	4.2	0.0	0.0	4.2	4.5	00
Sugar	881	16	0.0	0.00	0.00	0.00	0.0	0.0	4.0	0.0	4.0	0.0	0.0	00

Abbreviations:

CAL – Calories *FAT – Fat* *PFA – Polyunsaturated fatty acids*

MFA – Monounsaturated fatty acids *SFA – Saturated fatty acids* *CHOL – Cholesterol*

PRO – Protein *CHO – Carbohydrates* *STR – Starch*

SUC – Sucrose *ALCO – Alcohol* *CAF – Caffeine*

OTHER CHO – Other Carbohydrates

Food portions represented refer to the diet forms.

**Fruits divided into groups according to their carbohydrate content.*

Summary

Because of the relation of diet to serum lipid levels and atherosclerosis an evaluation of dietary habits is included in an epidemiologic study of coronary heart disease conducted in Puerto Rico. This is carried out by means of the 24-hour recall technic and by the Burke interview. The information is entered in pre-coded forms.

Food composition tables have been constructed giving the nutrient composition of each food. The actual calculation of nutrients is handled by computers.

References

1. *Ahrens, E. H., Jr., Tsaltas, T. T., Hirsch, J. and Insull, W., Jr.:* Effects of dietary fats on the serum lipids of human subjects. J. Clin. Invest. 34: 918, 1955.
2. *Kannel, W. B., Dawber, T. R., Kagan, A., Revotskie, N. and Stokes, J., III:* Factors of risk in the development of coronary heart disease - Six-year follow-up experience. Ann. Intern. Med. 55: 33, 1961.
3. *Keys, A.:* The diet and the development of coronary heart disease. J. Chronic Dis. 4: 364, 1956.
4. *Mann, G. V., and Stare, F. J.:* Nutrition and atherosclerosis. In Symposium on atherosclerosis. Nat. Acad. Sc. and Nat. Res. Council Publ. No. 338: 169, 1954.
5. *Yudkin, J., and Roddy, J.:* Levels of dietary sucrose in patients with occlusive atherosclerotic disease. Lancet 2: 6, 1964.
6. *Blanton, J. H., Rodríguez, M., Costas, R., Jr., Colón, A. A., Feliberti, M. Benson, H. Aixalá, R. and García-Palmieri, M. R.:* A dietary study of men residing in urban and rural areas of Puerto Rico. Amer. J. Clin. Nutr. 18: 169, 1966.
7. *Pearson, G.:* Personal communication.
8. *Becker, B. A., Indik, B. P. and Beeuwkes, A. M.:* Dietary intake methodologies. A review. Ann Arbor, 1960. The University of Michigan Research Institute.
9. *Torres, R. M.:* Dietary patterns of the Puerto Rican people. Amer. J. Clin. Nutr. 7: 349, 1959.
10. *Costas, R., Jr., Feliberti, M., García-Palmieri, M. R., Colón, A. A., Cruz-Vidal, M., Cortés-Alicea, M., Ayala, A. M. and Sobrino, R.:* Operational procedures at the Puerto Rico Heart Health Program Clinic. Bol. Asoc. Méd. P. Rico 61: 180, 1969.
11. *Burke, B. S.:* The dietary history as a tool in research. J. Amer. Diet. Ass. 23: 1041, 1947.
12. *Cancio, M.:* Sodium and potassium in Puerto Rican meats and fish. J. Amer. Diet. Ass. 38: 341, 1961.
13. *Cancio, M. and León, S. M.:* Sodium and potassium in Puerto Rican foods and waters. J. Amer. Diet. Ass. 35: 1165, 1959.
14. *Torres, R., Costas, R., Jr., and García-Palmieri, M. R.:* Statistical procedures for quality control in the Puerto Rico Heart Health Program. Bol. Asoc. Méd. P. Rico 61: 212, 1969.

MORBIDITY AND MORTALITY SURVEILLANCE IN A PROSPECTIVE EPIDEMIOLOGICAL STUDY OF CORONARY HEART DISEASE

Raúl Costas, Jr., MD
Mario R. García-Palmieri, MD
Manuel Feliberti, MD

The accuracy of a longitudinal study, in which all instances of new disease must be discovered, depends primarily upon the diligence with which a comprehensive surveillance of illness and deaths in the community under investigation is carried out. The matter is complicated not only by the size of the community, but by the number of hospitals to which study subjects may gain admission, and by the number of demographic registries in which a particular death may be entered. The availability of various hospital records is also a complicating factor.

In the Puerto Rico Heart Health Program surveillance is carried out for over 10,000 males who were 45 to 64 years old at the time a special census was made for this purpose (1964-1966) and who were residents of the urban enumeration districts (ED's) of Bayamón, Guaynabo and Carolina and of the rural ED's of Naranjito, Comerío, Barranquitas and Corozal (1).

The program for morbidity and mortality surveillance was prepared bearing in mind information previously garnered (2, 3):

1. In the study area most patients of the pertinent sex and age groups with serious disease are treated in a hospital.
2. A large majority of hospitalizations take place at two hospitals.
3. Hospital records are generally complete and available.
4. Most deaths occur in the hospital.
5. Of non-hospital deaths the majority have a record of a recent hospitalization for the illness which caused death.
6. Over 50 percent of all deaths have an autopsy performed.

From the Department of Medicine, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico.

This study was supported by Contract No. PH-43-63-620 of the National Heart Institute of the U. S. Public Health Service.

Morbidity Surveillance

Morbidity surveillance is carried out for a twofold purpose: to detect all events of myocardial infarction (MI), coronary insufficiency (CI) and cerebrovascular disease (CVA) occurring in the population under surveillance since April 1, 1965; and to document past histories of MI or CVA which cannot be confirmed by current electrocardiogram (ECG) or neurologic examination. The date April 1, 1965, is an arbitrary one, chosen solely because it corresponds to the beginning of the study examinations.

Hospital Surveillance

Those hospitals where most hospitalizations occur are visited on a monthly basis. Other government and private hospitals within the Metropolitan Area and government Health Centers in rural areas are visited every 3 to 6 months. Where a hospital in the interior of the island or on the U. S. mainland is involved, information regarding the hospitalization is obtained by mail, as it is not feasible to maintain routine surveillance of hospitals outside the study area.

This surveillance system is supplemented by information given by subjects at the time of a study examination as to hospitalizations or ECG's since the previous visit. The information is maintained on a file card for each subject.

Current hospital records of subjects under surveillance who have been discharged with any of the diagnoses shown in Table I are located. The method of locating records varies with the system used by each hospital, e. g., computer machine lists, Professional Activity Study (PAS) System, admission record or list, daily analysis, discharge record, etc.

In addition, for each subject for whom a current record is found, any previous records containing ECG's or one of the discharge diagnoses listed in Table I are located. In other cases, any available hospital records

TABLE I: DISCHARGE DIAGNOSES TO BE REVIEWED

Diagnosis	I C D A 8th Revision	I C D A 1962 Revision	Standard Code 5th Edition
Cerebrovascular disease	400.2 430-438	330-334 352 355.9	477-
Arteriosclerotic heart disease	410-414	420-422	41 x-584 41 x-618 41 x-942.7 410 -516 430 -516.7 430 -515.7 430 -512.7
Pulmonary embolism	450	465	471 -425 471 -522.4 471 -618
Undiagnosed disease	796.9	795.9	y00 -y00

may have to be located to document or date events of MI or CVA not previously documented or dated.

Each record selected for review is abstracted onto a specifically designed Hospitalization Investigation Form. In cases where a record was selected only because an ECG was taken, an abbreviated clinical history and the discharge diagnoses are all that need to be recorded. Photocopies of all ECG's available are made in every case.

Mailed Surveillance

In order to ascertain events of MI or CVA which may have been missed on hospital surveillance, every 2 years a surveillance form with prepaid return postage is mailed to those subjects who failed to come to the examination. Those not returning the form within 3 weeks are visited for the purpose of obtaining the information personally. Any hospitalizations or ECG's disclosed by this surveillance are scrutinized and either abstracted or photocopied, respectively, for review.

ECG Reading

All ECG's obtained from surveillance activities are read by one of the study cardiologists without knowledge of the clinical history or discharge diagnoses. The reading conforms to the study criteria (4) and is entered onto a special precoded form. All ECG's relating to a single hospitalization are coded in a single form, giving a composite reading.

Morbidity Surveillance Conference

To review medical records of events ascertained by morbidity surveillance and to make independent diagnoses of these events a weekly conference is held. A minimum of 3 study physicians including 2 cardiologists and the medical records librarian are required to be present. Using the information abstracted on the Hospitalization Investigation Form and the readings of all available ECG's, a clinical diagnosis is made using the study criteria (4). A specially designed Surveillance Code Sheet is filled out if any one of the following situations is present:

1. Whenever a diagnosis of MI, coronary insufficiency, or CVA is established for the hospitalization.
2. Whenever an ECG taken as part of the work-up for a hospitalization for a non-related illness or surgery shows evidence of an old MI not previously recorded in any of the study records.
3. Whenever a patient admitted with a history sug-

gestive of MI, CI or CVA is shown *not* to have MI, CI or CVA.

4. Whenever a patient died, regardless of the diagnosis, whether in the hospital or not.

After a diagnosis has been established the hospital discharge diagnoses are reviewed and, if available, the study record.

Mortality Surveillance

Mortality surveillance is carried out for the following purposes:

1. To ascertain all deaths which occurred in the surveillance population since date of enumeration at each town.
2. To determine the cause of death and other diseases which existed at the time of death.
3. To validate death certificate diagnoses.
4. To evaluate cardiovascular pathology by post-mortem examination.
5. To characterize non-respondents.

In order to ascertain deaths among study subjects several different mechanisms are employed. The demographic registries of San Juan, Santurce, Río Piedras, Bayamón, Naranjito, Comerío, Barranquitas, Corozal, Guaynabo, and Carolina are visited by a member of the study staff every 1-3 weeks to look for death certificates of males of the appropriate ages residing in the study area. At this time a copy is made of all certificates of males 40 to 69 years old who were residents of Bayamón, Guaynabo, Carolina, Naranjito, Comerío, Barranquitas and Corozal.

An obituary search is made in all Metropolitan Area daily newspapers. Also, since the surveillance population has been requested to inform the study of any change in their health status and they carry an identification card to this effect, occasionally calls or letters are received which give information as to the death of a participant.

Once a month a list is received from the Office of Demography and Vital Statistics of the Department of Health containing all male deaths 40-69 years old occurring anywhere in Puerto Rico where the deceased was a resident of the study area. Copies of any death certificates not previously obtained are gathered at this time. In cases where death occurred outside Puerto Rico, the death certificate is requested by mail.

Each death certificate is checked against the alphabetical listing of all persons enumerated. The name is looked for in four places:

1. as it appears on the certificate
2. with the two surnames reversed
3. with the first surname as only surname
4. with the second surname as only surname

If the name is not on the list, the certificate is discarded as not belonging to the study. If it is on the list, name, address and age are checked to see if they correspond. In the case of age, a difference of up to two years between the dates of birth appearing on the death certificate and on the study listing may be disregarded.

If there is a discrepancy in name, address or age, a field worker visits the home to verify the death certificate data.

If data cannot be verified, they are assumed to be correct and the certificate is discarded as not belonging to the study. If data are verified as correct the certificate does not belong to a study case. If data are found incorrect they are corrected.

If corrected data still do not correspond to the study data, the certificate is discarded as not of the study. If corrected data correspond with study data, the case is handled as indicated below.

If on the check up against the alphabetical list, the name, address, and age correspond to the study data, the date of death is checked against the date of first appointment. If death occurred before the date of first appointment, the case is discarded as not belonging to the study. If death occurred after the date of first appointment, a check is made to determine whether subject came in for examination or not.

If subject came in for examination, a visit is made to the pathologist who performed the autopsy, to the record room of the hospital where subject died, to the physician who signed the death certificate, or to surviving relatives, in an effort to verify the medical data of the cause of death. When this has been done the record is ready for review.

If subject did not come in for examination, the record of returned appointment letters is consulted. If all letters sent to subject were returned and there is no evidence that contact was ever established with him by telephone or in person, the case is discarded as not of the study. If at least one letter was not returned or if he was contacted in some other way, subject is classified as non-respondent. A field worker conducts the Post Mortem Interview on the relatives of such cases for the purpose of characterizing non-respondents. The case is then ready for interview.

Sources of Data for Determining Cause of Death

The source of the data on which the determination of the cause of death will be made is identified from information appearing on the death certificate.

In the case of autopsied deaths, a copy of the autopsy protocol alone is obtained, as the study staff considers that findings on post mortem examination are the best source of evidence for diseases present. Where a hospital death did not have an autopsy performed, the entire clinical record of the terminal illness is abstracted onto a Mortality Surveillance Form and all ECG's are photocopied. Old hospital records are abstracted as specified for Morbidity Surveillance.

When a subject died outside a hospital and an autopsy was not performed, two possible sources of information are available: (1) if the certifying physician had cared for the deceased during the terminal illness, a visit is made to him to obtain information personally or from his record of the deceased; this is abstracted onto a Mortality Surveillance Form; all ECG's are photocopied; and information about related hospitalizations is obtained and the hospitalizations checked; (2) if the certifying physician did not care for the deceased during the terminal illness and certification is made on the basis of outside information, the next of kin are visited at the address of the deceased appearing on the death certificate; if the deceased had been examined at the study, a Questionnaire to Relatives is filled out; if the deceased was a non-respondent, the Post-Mortem Interview Form is used. Usually the visit to the next of kin will show that there is a recent hospitalization related to the terminal illness. The record can then be located and abstracted for review.

Necropsy Surveillance

Since a large majority of autopsies on deceased persons in the Northeast Region are performed in the Medical Center and the Institute of Legal Medicine (IML), monitoring autopsies at these two locations constitutes a reasonably adequate surveillance. An agreement with the pathologist at both institutions ensures that cases will not be missed so that special studies can be performed on the vessels. A copy of the autopsy protocol is secured for the subject's record at the study.

Mortality Surveillance Conference

To make independent clinical diagnoses of diseases present at the time of death in non-autopsied cases and to determine the cause of death in all cases a weekly conference is held. A minimum of 3 study physicians including 2 cardiologists, the study pathologist, the statistician, and the medical records librarian are required to be present. ECG's will have been read prior to the conference, as described for Morbidity Surveillance.

Using information from the Mortality Surveillance Form, the Hospitalization Investigation Form, the Questionnaire to Relatives, all available ECG readings, the autopsy protocol, and/or the Post-Mortem Interview, a clinical diagnosis is made, without knowledge of any discharge diagnoses and applying the study criteria (4). A Surveillance Code Sheet is filled out and up to 3 causes of death noted. The discharge diagnoses and the study records of the case may then be reviewed.

Further details on methodology, as well as instructions for filling out the various forms are available elsewhere (5).

Summary

The accuracy of a prospective epidemiological study depends in large part on the completeness of surveillance of the study community for identification of new events of disease and deaths from its cause.

The methods used in the Puerto Rico Heart Health Program for morbidity and mortality surveillance are described in detail. Different forms are used for abstracting information from various sources; the data are brought in and reviewed at a special conference, when independent diagnoses are made without knowledge of discharge diagnoses or of previous findings at the study examination. The decisions made are noted in pre-coded forms for later data processing.

References

1. *García-Palmieri, M. R., Feliberti, M., Costas, R., Jr., Colón, A. A., Cruz-Vidal, M., Cortés-Alicea, M., Ayala, A. M., Sobrino, R., and Torres, R.:* An epidemiological study on coronary artery disease in Puerto Rico: The Puerto Rico Heart Health Program. Bol. Asoc. Méd. P. Rico 61: 174, 1969.
2. *García-Palmieri, M. R., Feliberti, M., Costas, R., Jr., Benson, H., Blanton, J. H., and Aixalá, R.:* Coronary heart disease mortality - A death certificate study. J. Chron.

Dis. 18: 1317, 1965.

3. *García-Palmieri, M. R., Feliberti, M., and Costas, R., Jr.:* Unpublished data.
4. *García-Palmieri, M. R., Costas, R., Jr. and Colón, A. A.:* The criteria for diagnosis of disease in a cardiovascular epidemiological study: The Puerto Rico Heart Health Program. Bol. Asoc. Méd. P. Rico 61: 184, 1969.
5. Puerto Rico Heart Health Program: Manual of Procedures. Second Examination Cycle, mimeographed, July 1968.

STATISTICAL PROCEDURES FOR QUALITY CONTROL IN THE PUERTO RICO HEART HEALTH PROGRAM

Raquel Torres, MS
Raúl Costas, Jr., MD
Mario R. García-Palmieri, MD

In the conduction of epidemiological studies a considerable amount of data related to different variables is obtained. These data, in order to be useful, must have been obtained under strict measures of quality control and must be clearly analyzed.

At present the term "statistics" has a dual meaning. It refers to the data themselves and also to the methods used to extract information from them. Statistical procedures constitute an integral part of epidemiological studies. Quality control is one of all the types of statistical applications in this kind of research.

Although there are many phases of quality control one of the basic applications is the use of control charts. We may plot the mean values for groups of measurements at different time periods to see the fluctuations. We may also plot the standard deviation values, which give us information on the variation itself, even when the level does not fall outside the established standards.

The objective of the quality control is to study a trend with sufficient accuracy to observe any deviations from an even course, and, when such deviations are observed, be able to take the necessary action to prevent future occurrences. This will insure a higher caliber of scientific reliability in the research conducted.

It is the purpose of this paper to outline some of the statistical procedures used at the Puerto Rico Heart Health Program.

Quality Control on Record Information

At the Puerto Rico Heart Health Program continuous quality control is kept on the information collected on the subjects examined.

After the examination is finished and before each subject leaves the clinic a final check for completeness is done. The identification information is verified and all forms are put in order to see that none is missing and that all blanks have been filled out. For any items that are not answered the record is taken back to the appropriate interviewer. After the record is complete an identification card is given to the subject with the the postal address and telephone numbers of the Program, so that he may notify the Program about any illness or hospitalization occurring after the examination.

A special card file is maintained of every subject who has had a hospitalization since five years prior to his first examination at the Program. On these cards control is kept of all information requested and obtained from hospitals. Some of this information is used to document old events of myocardial infarction or cerebrovascular accident (1).

Every record with a history and/or electrocardiogram suggesting coronary heart disease is reviewed at a meeting of all physicians and a final diagnosis is made using the criteria established (2-4).

An internal consistency check among a number of specified variables is made on every record. A special check is made for diagnoses of hypertension and diabetes to make sure they conform to the study criteria.

Once a month all records completed during that month are sent to the Data Processing Division for key punching. Each record of Examination I includes seven different forms known as "Decks" (Series), as follows:

Deck	01	Identification information
Deck	02	Social information
Deck	03-04	Dietary information
Deck	05	Medical history and physical examination
Deck	06	Electrocardiogram and clinical diagnosis
Deck	07	Laboratory results

The Examination II record contains six decks; na-

From the Department of Medicine, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico.

This study was supported by Contract No. PH-43-63-620 of the National Heart Institute of the U. S. Public Health Service.

mely:

Deck	21	Identification information
Deck	22	Social information
Deck	23	Medical history and physical examination
Deck	24	Electroeardiogram
Deck	25	Clinical diagnosis
Deck	26	Laboratory results

In addition in some cases, a set of seven to twelve decks with the dietary information from the Burke interview, is included. This set comprises decks 27 to 33 and none, some or all of deeks 34 to 38. All these decks are also sent for key punching.

All records are sent to the Data Proeessing Division separated into deeks. Every deek is punehed on a card and every punehed card is verified. All the information except that on decks 27 to 38 is stored in maehine memory.

Master Food Tables used for the eonversion of foods to nutrients have previously been stored in memory, as are weights used for ealculating a physieal aetivity index (PAI).

The PAI is ealculated from the collected information by the formula:

$$PAI = \sum_{i=1}^{5} h_i \; w_i$$

where h_i = hours

w_i = weight

The weights used for the different kinds of aetivity are as follows:

Weight	Activity
1.0	none (sleep)
1.1	sedentary
1.5	slight
2.4	moderate
5.0	heavy

The physical activity index, then is the product of weights (w_i) and hours (h_i) spent in the aetivity.

The computer also makes the eonversion of foods to nutrients. The nutrients from decks 03 and 04 are computed from the general formula:

$$L_j = \sum_{i=1}^{39} x_i \; w_{ij} + e_j$$

where x_i = food field of deek 03

w_{ij} = an element of the Master Food Table

e_j = the j^{th} field of deck 04

The value L_j is stored in maehine memory.

The nutrients for the Burke interview are computed from the following formulas:

Daily consumption:

$$CD_j = \sum_{i=1}^{44} x_{i1} \; w_{ij} + \frac{x_{45} \; w_{45j}}{y} + \sum_{i=46}^{78} x_{i1} \; w_{ij} + \sum_{k=1}^{k} n_k \; v_j$$

Weekly consumption:

$$CW_j = [\sum_{i=1}^{44} x_{i2} \; w_{ij} + \frac{x_{45} \; w_{45j}}{y} + \sum_{i=46}^{78} x_{i2} \; w_{ij}] + 7.0 + [\sum_{k=1}^{k} n_k \; v_j] + 7.0$$

Monthly consumption:

$$CM_j = [\sum_{i=1}^{44} x_{i3} \; w_{ij} + \frac{x_{45} \; w_{45j}}{y} + \sum_{i=46}^{78} x_{i3} \; w_{ij}] + 30.0 + [\sum_{k=1}^{k} n_k \; v_j] + 30.0$$

Total consumption: $T_j = CD_j + CW_j + CM_j$

where $x_{i,t}$ are the fields in decks 27 to 33

w_{ij} are the elements of the Master Food Table

n_k are eolumns 12-13 of decks 34 to 38

v_j are the remaining fields of decks 34 to 38

There are two work decks, 20 and 40, where the PAI, the nutrients and some other information are ineluded.

A set of legal codes has been defined for eaeh variable in the reeord with a lower limit and an upper limit. The computer eheeks for illegal eodes as identified for each variable, for duplication of record numbers, and for presence of all decks for eaeh record. The computer prepares a listing in numerical order of case number, including all decks, and printing out any error. The listing with the error message is eorreeted at the Program as many times as neeessary until all the corrections have been made.

The Data Processing Division prepares a report giving the mean, standard error of the mean, variance, sum of squares, and the extreme values for different variables. The variables included are: physical activity index, metabolic equivalent, salt, total calories, total fat, total carbohydrates, total protein, poly-unsaturated/saturated fat, vital capacity, skinfold over triceps area, pulse rate, systolic blood pressure, diastolic blood pressure, serum turbidity, hematocrit, blood glucose, serum cholesterol and serum glycerides.

The values are reported by interviewer and by rural-urban area.

The means among the different interviewers are compared and a report showing the differences, if any, is given to them. A monthly trend for each variable is kept at the Clinic in order to see the variation from month to month. There is also a monthly trend by interviewer of the value adjusted by rural-urban area. It shows the differences between the interviewers regardless of the rural-urban distribution of the group each of them interviewed.

Quality Control on Laboratory Procedures

Every day or every other day one or two blind samples of blood and urine are drawn for comparison of the laboratory results. These blind samples are duplicate blood specimens drawn from one or two of the regular study subjects examined that day.

A fictitious name and number are assigned to the blind sample as if it were a regular sample. Only the nurse responsible for blood-letting receives this information. After she takes the samples she notifies the Statistical Section by indicating on a list that is given to her to which original subject the blind sample corresponds. The statistical section keeps a record of the laboratory results of all the blinds and their corresponding originals. At the end of every month the results are analyzed. The technical error is determined by the formula:

$$E = \sqrt{\frac{\sum d^2}{2n}}$$

Where E = technical error

d = difference between original (x_i) and blind (y_i) for the same subject ($x_i - y_i$)

$\sum d^2$ = sum of the squared differences

n = number of pairs

The coefficient of variation is calculated as $100 \frac{E}{\bar{x}}$ where $\bar{x}$ is the mean of the values, both originals and blinds.

We plot the coefficient of variation in a control chart and notify the laboratory of the deviations, if any.

Summary

Some of the statistical procedures used at the Puerto Rico Heart Health Program are presented, with special emphasis on quality control. The process of quality control on record information and laboratory procedures is discussed in some detail. The usefulness of this form of control in an epidemiological study is emphasized.

Acknowledgment

The helpful suggestions and criticism of Mrs. Jeanne Truett, former Statistician, Biometrics Research Branch of the National Heart Institute, in the designing of the methods for quality control is gratefully acknowledged.

References

1. *Costas, R., Jr., García-Palmieri, M. R., and Feliberti, M.:* Morbidity and mortality surveillance in a prospective epidemiological study of coronary heart disease. Bol. Asoc. Méd. P. Rico 61: 207, 1969.
2. *García-Palmieri, M. R., Costas, R., Jr., and Colón, A. A.:* The criteria for diagnosis of disease in a cardiovascular epidemiological study: The Puerto Rico Heart Health Program. Bol. Asoc. Méd. P. Rico 61: 184, 1969.
3. *García-Palmieri, M. R., Costas, R., Jr., Cruz-Vidal, M., and Cortés-Alicea, M.:* The electrocardiographic criteria in a population study on ischemic heart disease in Puerto Rico. Bol. Asoc. Méd. P. Rico 61: 190, 1969.
4. *Costas, R., Jr., Feliberti, M., García-Palmieri, M. R., Colón, A. A., Cruz-Vidal, M., Cortés-Alicea, M, Ayala, A. M., and Sobrino, R.:* Operational procedures at the Puerto Rico Heart Health Program Clinic. Bol. Asoc. Méd. P. Rico 61: 180, 1969.
5. *Dawber, T. R., Kannel, W. B. and Friedman, G.:* Vital capacity, physical activity and coronary heart disease. In Raab, W.: Prevention of ischemic heart disease: Principles and practice. Charles C. Thomas, Springfield, Illinois, 1966.

--- A P P E N D I X ----

Precoded forms used at the Puerto Rico Heart Health Program

FORM APPROVED
BUDGET BUREAU NO. 66-6444
APPROVED THROUGH 12/31/69

PROGRAMA DE SALUD DEL CORAZON	IDENTIFICACION	EXAMEN I HOJA DE CODIFICACION SERIE 01

Apellido paterno materna Nombre

Dirección Calle Número Urbanización o barria

COL.	CLAVE	PARTIDA
1-6		Número de expediente
7-8	0 1	Serie
9-14	MES DIA AÑO	Fecha de primera cita
15-20		Fecha de examen
21-26		Fecha de nacimienta
27-28		Edad (añas cumplidas)
29-30		Municipia de residencia
31-32		Distrita de enumeración
33	Menas de 1: 0 1 2 3 4 5 6 7 — Par la menas 8: 8 — Desc.: 9	Añas de residencia en este municipio
34	No se mudó: 0 — Ciudad: 1 — Campo: 2 — Desc.: 9	Antes de esta residencia,¿dónde vivió?
		¿Nació en Puerta Rica? Sí No
72-73		Edad
74		Municipia de residencia
75-80	MES DIA AÑO	Fecha de nacimiento — Revisor:

FORMA Z

FORM APPROVED
BUDGET BUREAU NO 68-6444
APPROVED THROUGH 12/31/69

PROGRAMA DE SALUD DEL CORAZON	INFORMACION SOCIAL	EXAMEN I HOJA DE CODIFICACION SERIE 02

COL.	CLAVE	PARTIDA
1-6		Número de expediente — Apellida paterna — materna — Nombre
7-8	0 2	Serie — Fecha de examen
9	Saltero 1 · Casada 2 · Viuda 3 · Divarciado a separada 4 · Desc. 9	ESTADO CIVIL
		EDUCACION COMPLETADA
10	Ning. 0 · Grados 1 a 4 1 · 5 a 8 2 · Esc. Superiar Alga 3 · Grad. 4 · Univ. Alga 5 · Grad. 6 · Desc. 9	El sujeto
11	0 1 2 3 4 5 6 9	Su padre
		OCUPACION
12		Número de empleos que tiene ahara
13	Obrero na diestra Fue. 0 · Dent. 1 · Obrera diestro Fue. 2 · Dent. 3 · Oficina. Ventas Fue. 4 · Dent. 5 · Supervisor. Administ. Fue. 6 · Dent. 7 · Ejecut. Profes. 8 · Desc. 9	Tipa de trabajo (detalle abajo) •
14	0 1 2 3 4 5 6 7 8 9	Tipa de trabajo del padre
15	0 1 2 3 4 5 6 7 Más de 7 8 · Desc. 9	Número de cambias de emplea en los últimos 5 añas. (No incluya las debidas a ascensa a tiempo muerta.)
16-19		Total entradas mensuales (Desc. = 9999)
20-21		Total de personas que viven en la casa — Adultos ____ Niños (menores de 18 añas):
22	Vive 0 · Murió: Enfermedad corazón 1 · Derrame 2 · Diabetes 3 · Cancer 4 · Accid. 5 · Otro 8 · Desc. 9	El padre ¿vive? Si murió, causa de la muerte.
23-24		Edad actual o al marir (98 a más = 98; desc. = 99)
25	Vive 0 · Murió: Enfermedad corazón 1 · Derrame 2 · Diabetes 3 · Cancer 4 · Accid. 5 · Otro 8 · Desc. 9	La madre ¿vive? Si murió, causa de la muerte.
26-27		Edad actual o al marir (98 a más = 98; desc. = 99)

• ¿Qué es lo que usted hace en su trobojo?

Entrevistado por:

FORMA A

PROGRAMA DE SALUD DEL CORAZON	INFORMACION SOCIAL	EXAMEN I HOJA DE CODIFICACION SERIE 02

COL.	CLAVE	PARTIDA
		HABITO DE FUMAR
28	Nunca 0 · Sí, ahora 1 · Sí, ahora no 2 · Desc. 9	¿Ha fumada usted cigarros alguna vez?
29	0 1 2 9	¿Ha fumado usted pipa alguna vez?
30	0 1 2 9	¿Ha fumado usted cigarrillos alguna vez?
31	Nunca fumó X · Fuma ahora 1 · Mala salud 2 · Salud futura 3 · Otra 8 · Desc. 9	¿Por qué dejó de fumar cigarrillos? (Si nunca fumá, siga a 40-41.)
32-33		Si fuma o ha fumado cigarrillos alguna vez, número promedia par día
34-35		Edad en que comenzá a fumar cigarrillas can regularidad
36	No 0 · Sí 1 · Desc. 9	¿Inhala o inhalaba regularmente?
37	0 1 9	¿Usa o usaba filtro regularmente?
38-39		Si no fuma cigarrillos en la actualidad, número de años que na fuma. (menos de 1 año = 00)
		ACTIVIDAD FISICA ORDINARIA
	Número de horas	Promedia de haras al día que pasa en:
40-41		Ninguna actividad (en el sueño o repaso)
42-43		Actividad sedentaria, coma sentada a de pie
44-45		Actividad ligera, coma caminando a nivel
46-47		Actividad maderada, como caminando cuesta arriba a subienda escaleras
48-49		Actividad pesada, camo talando
		_____ TOTAL. (Asegúrese que el total de horas suma 24.)
50-52		Equivalente metabólico

De todo lo que usted hace durante la semana, ¿qué es la que requiere el mayor esfuerzo físico?
(La actividad debe llevarse a cabo por lo menos dos horas por semana.)

PROGRAMA DE SALUD DEL CORAZON	INFORMACION SOCIAL	EXAMEN I HOJA DE CODIFICACION SERIE 02

Número de expediente

NOMBRES Y DIRECCIONES DE PERSONAS QUE SIEMPRE SABRAN LA DIRECCION DE USTED

Número de hermanos varones de padre y madre de 40 a 70 años de edad: _____

Nombre _____
¿Ha venido a examen? Sí No No sabe
Edad _____
Dirección postal _____

¿Cuánto tiempo en ésta? _____

Nombre _____
¿Ha venido a examen? Sí No No sabe
Edad _____
Dirección postal _____

¿Cuánto tiempo en ésta? _____

Nombre _____
¿Ha venido a examen? Sí No No sabe
Edad _____
Dirección postal _____

¿Cuánto tiempo en ésta? _____

Nombre _____
¿Ha venido a examen? Sí No No sabe
Edad _____
Dirección postal _____

¿Cuánta tiempo en ésta? _____

Médico a quien enviar los resultados si es necesario:
Nombre _____
Dirección postal _____

Otros dos familiares (que no viven con usted):
Nombre _____
Dirección postal _____

Nombre _____
Dirección postal _____

Dos amigos que viven en Puerto Rico:
Nombre _____
Dirección postal _____

Nombre _____
Dirección postal _____

Dos familiares o amigos que viven en los Estados Unidos:
Nombre _____
Dirección postal _____

Nombre _____
Dirección postal _____

Agencia que lo emplea:
Nombre _____
Dirección postal _____

Teléfono _____

Teléfonos del sujeto:
Residencia _____
Trabajo _____

COL.	CLAVE	PARTIDA	
68-71		Número de familia	
72-73		Edad	
74		Municipio de residencia	Revisor:
75-80	MES DIA AÑO	Fecha de nacimiento	

FORM APPROVED
BUDGET BUREAU NO. 68-6444
APPROVED THROUGH 12/31/66

PROGRAMA DE SALUD DEL CORAZON | **DIETA** | **EXAMEN I HOJA DE CODIFICACION SERIE 03**

COL.	CLAVE	PARTIDA
1-6		Número de expediente — Apellido paterno — materna — Nambre
7-8	0 3	Serie — Fecha de examen

COL.	CLAVE	PARTIDA ALIMENTO	CANTIDAD	COL.	CLAVE	PARTIDA ALIMENTO	CANTIDAD
9-10		Ovalácteos: Leche íntegra - 4 oz.		37		Frutas y jugas: Grupo I - 100 gm	
11		Queso - 1 oz.		38		Grupo II - 100 gm.	
12		Mantecado - ½ taza		39		Grupo III - 100 gm	
13		Huevo - 1 mediano		40-41		Grasa: Manteca de cerdo - 1 cdta.	
14-15		Cornes: Res y ternero - 1 oz.		42-43		Aceite de maíz - 1 cdta.	
16-17		Pollo - 1 oz.		44-45		Aceite de oliva - 1 cdta.	
18-19		Cerdo - 1 oz.		46-47		Aceite de soya - 1 cdta.	
20		Jamón - 1 oz.		48-49		Montequilla - 1 cdta.	
21		Embutidos y Luncheon Meat 1 oz.		50-51		Margorino - 1 cdta.	
22		Potos de cerdo - 100 gm.		52		Mayoneso - 1 cdto.	
23		Pescoda fresco - 1 oz.		53-54		Dulces: Azúcar refinado - 1 cdto.	
24		Bocaloo - 20 gm.		55		Jaleos y pastos - 1 cdta.	
25		Otros moriscos - 1 oz.		56		Bizcocho sencilla - 55 gm.	
26		Cereoles: Cereol cacido - ½ toza		57		Bebidas: Colas - 6 oz.	
27-28		Pon o golletos - 25 gm.		58		Malta - 6 oz.	
29-30		Arroz - ½ tozo		59-60		Licores - 1 ½ oz.	
31-32		Leguminosas: Gronos - 1/4 tazo		61		Cerveza - 6 oz.	
33-34		Vegetoles forinóceos: Viondos - 50 gm.		62		Café, P. R. - 1 oz.	
35		Otros vegetales: Cocidos - 1/4 taza		63		Chocolote - 1 cdta.	
36		Crudos - 1/4 tazo		64-65		Número de comidas	

FORMA B

PROGRAMA DE SALUD DEL CORAZON	DIETA	EXAMEN 1 HOJA DE CODIFICACION SERIE 03

COL.	CLAVE	PARTIDA
66	No Sí 0 1	Otros olimentos
67	No: L · J V D Fest. — 0 1 2 3 Sí: L · J V D Fest. — 4 5 6 7	¿Comió ayer lo que ocostumbro comer usuolmente?
		¿Come los siguientes olimentos?

Unidodes por semana		Alimentos	Unidodes de sodio	Veces por semono
		Bacolao 1 oz.	1	
		Embutidos 1 oz.	2	
		Jamón 1 oz.	3	
		Arenque 1 oz.	1	
		Tocineta 2 lonjos	1	
		Patos de cerdo 100 gm.	2	
		Plotonutres, Popitos, etc. 1 oz.	1	
		Otros		
		¿Come solodo?	Clave: No 00; Poco 05; Moderodo 10; Mucho 20	

68-69		TOTAL
70	No se hizo 0 · Confiable 1 · No confioble 2 · Desc. 9	Confiabilidad de la entrevisto
71		Número del entrevistador
72-73		Edad
74		Municipio de residencio — Revisor:
75-80	MES DIA AÑO	Fecho de nocimiento

FORM APPROVED
BUDGET BUREAU NO. 68-R444
APPROVED THROUGH 12/31/69

PROGRAMA DE SALUD DEL CORAZON	DIETA OTROS ALIMENTOS	EXAMEN I HOJA DE CODIFICACION SERIE 04

COL.	CLAVE	PARTIDA			
1-6		Número de expediente	Apellida paterno	materna	Nombre
7-8	0 4	Serie	Fecha de examen		

COL.	CLAVE	PARTIDA							
	Total	ALIMENTO							
		Cantidad							
9-12		Calorías							
13-15		Grasa (gm)	Animal						
16-18			Marisco						
19-21			Vegetal						
22-25		Acidos grasos (décimas de gm)	Poli-insaturados						
26-29			Mono-insaturados						
30-33			Saturados						
34-37		Calesteral (mg)							
38-40		Proteínas (gm)	Animal						
41-43			Marisco						
44-46			Ovoláctea						
47-49			Vegetal						
50-52		Hidratos de carbana (gm)	Almidón						
53-55			Azúcar						
56-58			Otros						
59-61		Alcohol (gm)							

COL.	CLAVE	PARTIDA	
72-73		Edad	
74		Municipio de residencia	Revisar:
75-80	Mes Día Año	Fecha de nacimiento	

FORMA C

FORM APPROVED
BUDGET BUREAU NO. 68-8444
APPROVED THROUGH 12/31/69

PROGRAMA DE SALUD DEL CORAZON	HISTORIAL MEDICO	EXAMEN I HOJA DE CODIFICACION SERIE 05

COL.	CLAVE	PARTIDA	
1 - 6		Número de expediente	Apellido paterno materna Nombre
7 - 8	0 5	Serie	Fecha de examen

HOSPITALIZACION DURANTE LOS ULTIMOS 5 AÑOS ☐ Ninguna

Causa de la Hospitalización	Nombre y Dirección del Hospital	Fechas

COL.	CLAVE	PARTIDA
		ENFERMEDADES CARDIACAS
		− + ? Sopla cardíaca Edad en que lo notaran: Describa:
		− + ? "Enfermedades del corazón"
		− + ? "Alta presión" Niveles (si sabe)_____ Edad:
		ENFERMEDADES PULMONARES
		− + ? Asma − + ? Bronquitis − + ? Pulmanía − + ? Tuberculasis − + ? Tos por más de un mes − + ? Hemotisis Describa:
		ENFERMEDADES URINARIAS
		− + ? Sangre en orina − + ? Piedras en riñones − + ? Infección de riñones − + ? Examen de orina − + ? Salió bien Describa:
		ENFERMEDAD DEL TIROIDES
		☐ No ☐ Sí. Tipo: _____ Trotamiento:

Comentarios:

FORMA DI 1

PROGRAMA DE SALUD DEL CORAZON	HISTORIAL MEDICO	EXAMEN I HOJA DE CODIFICACION SERIE 05

COL.	CLAVE	PARTIDA
9	No Sí Quizás Desc. 0 1 2 9	DIABETES
10	Ning. Sála dieta Tableta oral Insulina 0 1 2 3	Tratamienta. (Si na hay diabetes, marque Ninguna) Especifique:
		Edod diagnasticada _____ Evidencia: − + ? Hiperglicemia − + ? Coma diabética − + ? Glucasuria − + ? Shack insulínica − + ? Tolerancia glucasa
11	No Sólo padres Sálo hermanos Ambos Desc. 0 1 2 3 9	Historial familiar de diabetes (parientes de primer grada salamente).
		OTRAS ENFERMEDADES
12	No Ultima año Ultimas 5 años Desc. 0 1 2 9	¿Ha recibida tratamienta para parásitas recientemente? ¿Cuándo? Tipa: − + Bilharzia − + Otra. Especifique _____ ☐ Na sabe
		− + ? Operacianes − + ? Otras haspitalizacianes − + ? Otras enfermedades serias que requirieran atención médica par más de un mes Describa:
		MEDICINAS CARDIACAS
13	No Sí Quizás Desc. 0 1 2 9	Dragas tipa digital — Antes(✓) — Ahara (✓)
14	0 1 2 9	Drogas tipo nitraglicerina
15	0 1 2 9	Diuréticos
16	0 1 2 9	Drogas hipatensoras
17	0 1 2 9	Otras medicinas cardíacas de importancia: − + ? Quinidina − + ? Anticoagulantes − + ? Depresores del calesterol
18	0 1 2 9	Tranquilizantes

Comentarias:

PROGRAMA DE SALUD DEL CORAZON	HISTORIAL MEDICO	EXAMEN I HOJA DE CODIFICACION SERIE 05

Número de expediente

COL.	CLAVE	PARTIDA

MOLESTIA EN EL PECHO (dolor, pesadez, apresián) ☐ No

¿Cuánda acurre esta malestia?
- + Can el ejercicia a excitación
- + Cuanda tranquila y descansanda

Tiempa que la ha tenida:	Duración usual:
Localización:	Se mejora can:
Irradiación:	
Tipa:	

Frecuencia:
- + Ataques cartas. ¿Can qué frecuencia? _____
- + Ataque prolongado. Fechas:

Descripción adicianal:	Apuntes del segundo examinadar:

Opinión del primer examinadar:
- + ? Angina de pecho
- + ? Insuficiencia coranaria
- + ? Infarta de miocardio

Opinión del segunda examinador:
- + ? Angina de pecho
- + ? Insuficiencia coronaria
- + ? Infarta de miocardio

SINTOMAS DE FALLO CARDIACO

- + ? Disnea de esfuerzo	No. ☐
- + ? Edema de ombas tabillas	Ortapnea: Presente ☐
- + ? Disnea paraxística nocturno	Antigua ☐
	Dudasa ☐

- + ? Opinión del exominadar sobre falla cardíaca

Camentarias:

PROGRAMA DE SALUD DEL CORAZON	HISTORIAL MEDICO	EXAMEN I HOJA DE CODIFICACION SERIE 05

COL.	CLAVE	PARTIDA

ENFERMEDAD CEREBROVASCULAR

Síntamas	Duración	Descripción
− + Debilidad muscular unilateral súbita Izq. Der.		
− + Defecta súbita del habla		
− + Defecto súbita de la vista		

− + ¿Observada?_____ Par _____
Dr: Dirección:

− + ¿Haspitalizada? _____ Número de días _____
¿Dánde? ¿Cuánda?

− + ? Opinián del examinadar sabre enfermedad cerebrovascular

Descripción adicional:

ENFERMEDAD PERIFEROVASCULAR

− + Malestio en las extremidades inferiores al caminar Izq. Der.	− + Empieza con las primeras pasas
	− + Empieza después de caminar un rato
	− + Relacionada con la velocidoć o el grado de la cuesta
− + Pantorrilla	− + Tiene que detenerse. Distancia:
− + Otro. Especifique:	− + Se mejora al detenerse. En____minutos.

Edad en que empezó: Duración:

− + ? Opinión del examinadar sobre claudicación. (Si positivo haga la prueba de Ratschow).

Comentarios:	Fecha de nocimiento:	Revisor:

FORM APPROVED
BUDGET BUREAU NO. 68-6444
APPROVED THROUGH 12/31/69

PROGRAMA DE SALUD DEL CORAZON	EXAMEN FISICO	EXAMEN I HOJA DE CODIFICACION SERIE 05

Apellido paterno moterno Nombre

Número de expediente_____

Fecho de exomen:

COL.	CLAVE	PARTIDA	
		MEDIDAS	
19-20		Estoturo (sin zopotos, o la pulgado más cercono)	
21-23		Peso octuol (sin zopotos, o lo libro más cercono)	
24-26		Peso o lo edod de 25 años	
27-28		Copocidod vital (décimos de litro)	
29-30		Pliegue de piel, región del triceps (mm)	
31-32		Circunferencio del brazo (cm)	
33-34		Distoncio intercondilor (cm)	
35-37		Pulso inicial (radial izquierdo)	
38-40		Sistólico	Presión orteriol iniciol (brozo izquierdo, sentodo, sin preporoción)
41-43		Diostólico	
		OJOS	*Describo locolizoción y tomoño:
44	No Poco Mod. Morc. Desc. 0 1 2 3 9	Arco senil	
45	No Sí Quizós Desc. 0 1 2 9	Xontelosmo *	
46	No Sí Quizós Desc. 0 1 2 9	ANORMALIDAD DEL TIROIDES	
		- + ? Nódulo solitorio	- + Cicotriz
		- + ? Nódulos múltiples	- + ? Agrandomiento difuso
		- + ? Otros monifestociones. Describo:	
47	No Sí Quizós Desc. 0 1 2 9	XANTOMAS	Describo y locolice:
		SISTEMA RESPIRATORIO	
		- + Cifosis - + Escoliosis - + Diómetro onteroposterior oumentodo - + Ruidos respirotorios onormoles - + Estertores	
		Describo onormolidodes:	

FORMA D-2

PROGRAMA DE SALUD DEL CORAZON	EXAMEN FISICO	EXAMEN I HOJA DE CODIFICACION SERIE 05

COL.	CLAVE	PARTIDA
		CORAZON
		− + Choque de punta o matidez más de 1 cm fuera de la línea medioclavicular
		SONIDOS ANORMALES (ej: galope, frotes, chasquidas, etc.) Especifique y describa:
		SOPLOS SISTOLICOS

Area de mayor intensidad	No	Grado
Apice	0	1 2 3 4 5 6
Precordio	0	1 2 3 4 5 6
Base izquierda	0	1 2 3 4 5 6
Base derecha	0	1 2 3 4 5 6
Soplo significativo	− + ?	

Describo los soplas significativos (radiación, tipo eyectivo, etc.):

48	No soplo significativa 0 Mitral 1 Aórtica 2 Ambas 3 Otra 4 Desc 9	Opinión del examinador sobre la válvula de origen de saplos significativos
		SOPLOS DIASTOLICOS
49	No soplo 0 Mitral 1 Aórtica 2 Ambas 3 Otra 4 Desc. 9	Area de origen | Grada 0 1 2 3 4 5 6
		Describa las soplos diastólicos:
		Anotaciones del segundo examinador sobre los saplos:
		Firma:
		− + ? Distensión de venos cervicoles

Camentarias:

PROGRAMA DE SALUD DEL CORAZON	EXAMEN FISICO	EXAMEN I HOJA DE CODIFICACION SERIE 05

Número del expediente:

COL.	CLAVE	PARTIDA
		ABDOMEN
		− + ? Hígada grande − + ? Otra anarmalidad hepática − + ? Otra anormalidad abdominal — Describa:
		VASOS PERIFERICOS (Describa hallazgos abajo)
		Edema maleolar — No / Grado 1 2 3 4 Izquierdo — 0 — 1 2 3 4 Derecho — 0 — 1 2 3 4
		Venas varicosas visibles — No / Grado 1 2 3 Izquierda — 0 — 1 2 3 Derecha — 0 — 1 2 3 Leyenda de gradas: 1. Sin complicación; 2. Con edema o cambias de piel; 3. Con ulceración
		Si hay algún hallazgo positivo en las partidas siguientes, haga la prueba de Rotschow.
		− + ? Amputación — Area: / Extensión: / Causa:
		− + ? Diferencia de temperatura de las pies. — Pie más frío: Izq. Der.
		− + ? Pulsas periféricos ausentes a disminuídas
		Izquierda: − + ? Carotídea; − + ? Dorsal del pie; − + ? Tibial posterior; − + ? Femoral; − + ? Radial Derecha: − + ? Carotídeo; − + ? Dorsal del pie; − + ? Tibial posterior; − + ? Femoral; − + ? Radial
50	No se hiza 0 / Positiva 1 / Negativa 2 / Dudasa 3	Prueba de Ratschaw
		− + ? Palidez anormal a la elevación − + ? Recoloración demarada _____ segundos − + ? Relleno de venas demorado _____ segundos − + ? Rubar reaccianario excesivo o demorado — Describa:
		− + ? Opinión del exominadar sobre la enfermedad arterial periférica

Comentarias:

PROGRAMA DE SALUD DEL CORAZON	EXAMEN FISICO	EXAMEN I HOJA DE CODIFICACION SERIE 05

COL.	CLAVE	PARTIDA
51	No Sí Quizás Desc. 0 1 2 9	HALLAZGOS NEUROLOGICOS ANORMALES
		− + ? Dificultad del habla − + ? Cambios mentales − + ? Debilidad muscular localizada − + ? Dificultad de la vista − + ? Reflejos anormales − + ? Anormalidad de los nervios craneales − + ? Signos cerebelasas − + ? Déficit sensarial
		Describa:
52	No Sí Quizás Desc. 0 1 2 9	El examinador cree que los hallazgos representan una lesión cerebrovascular.
		− + ? Embolia cerebral
		− + ? Hemorragia intracerebral
		− + ? Hemorragia subaracnaidea
		− + ? Infarto cerebral aterosclerótico
53	No Sí Quizás Desc. 0 1 2 9	El examinador cree que los hallazgos representan otra enfermedad neuralágica. Especifique:
54-56		Pulsa final (radial izquierdo)
57-59		Sistólica — Presión arterial final (brazo izquierdo)
60-62		Diastólica
		INDICE FISIOLOGICO DE ANSIEDAD
		Temblor
		Manos o axilas sudorosas
		Pulsa lábil
		Presión arterial lábil
		Reflejos tendinosas aumentados
		Inquietud
		Dificultad para tragar repetidamente
		Se come las uñas
		Aleteo palpebral
		El examinador cree que el sujeto está ansioso.
		Para cada partida indique: 0 - Ausente 1 - Moderado 2 - Severo
		Pulsa y presión lábil: Moderado - diferencia de 10 a 19 unidades Severa - diferencia de 20 o más unidades
63-64		TOTAL
70-71		Número del examinador — Firma:
72-73		Edad
74		Municipio de residencia — Revisor:
75-80	MES DIA AÑO	Fecha de nacimiento

FORM APPROVED
BUDGET BUREAU NO. 68-6444
APPROVED THROUGH 12/31/69

PROGRAMA DE SALUD DEL CORAZON | **ELECTROCARDIOGRAMA** | **EXAMEN I HOJA DE CODIFICACION SERIE 06**

COL.	CLAVE	PARTIDA		
1-6		Número de expediente	Apellido paterno materno	Nombre
7-8	0 6	Serie	Fecha de examen:	
9	No Sí Desc. 0 1 9	El sujeto toma drogas cardíacas (digital, quinidina, etc.) Especifique:		
		12 DERIVACIONES STANDARD		
		Contracciones auriculares por minuto:		
10-12		Contracciones ventriculares por minuto		
13-14		Intervalo P - R (centésimas de segundo)		
15-16		Duración de QRS (centésimas de segundo)		
17-19		Eje eléctrico (grados)		
20	+ − Indeterminable 1 2 3	Eje eléctrico (dirección) (Para eje de 0 grados marque 1.)		
21	No Sí Quizás 0 1 2	Infarto de miocardia	Localización:	
22	No Definitiva Posible 0 1 2	Hipertrofia ventricular izquierda		
23	0 1 2	Hipertrofia ventricular derecha		
24	No No específica Cambios secundarios Otra Quizás 0 1 2 3 4	Alteración de onda T	Especifique:	
25	No Secundaria Otra Quizás 0 1 2 3	Alteración de segmento S T	Especifique:	
26	No BIV Izq. Der. Ind. Otro Incompleto Izq. Der. 0 1 2 3 4 5 6	Bloqueo intraventricular	Abreviaturas Ind. - Indeterminado si izquierdo o derecho	
27	No Grado 1 2 3 WPW 0 4	Bloqueo atrioventricular	1 - Intervalo P - R prolongada 2 - Contracción omitida 3 - Disociación atrioventricular completa WPW - Wolf Parkinson White	
28	No Supraventricular Atrial Nodal Ind. Ventricular Combinadas 0 1 2 3 4 5	Contracciones prematuras		
29	No Sí 0 1	Fibrilación atrial		
30	0 1	Aleteo atrial ("flutter")		
31	No Sí Quizás 0 1 2	Otra arritmia	Especifique:	
32	No Efecto digital Otra Efecto digital y otra 0 1 2 3	Otra anormalidad cardiográfica	Especifique:	
33	No Sí Quizás 0 1 2	El cardiograma presenta alguna de las anormalidades especificadas arriba.		
34	Normal Anormal Dudoso No se hizo 0 1 2 9	Interpretación clínica	Fecha de nacimiento:	Revisor:
35-36		Número del examinador		

FORMA E

PROGRAMA DE SALUD DEL CORAZON	DIAGNOSTICO CLINICO	EXAMEN I HOJA DE CODIFICACION SERIE 06

Apellida paterna materna Nambre

Número de expediente _____

Fecho de nacimienta:

COL.	CLAVE	PARTIDA	
		ENFERMEDAD CEREBROVASCULAR	
54	No 0 Si 1 Quizás 2 Desc. 9	Infarto cerebral embálico	Secundario o:
55	0 1 2 9	Inforto cerebral ateroscleróticó	Especifique signos neurológicos:
56	0 1 2 9	Hemarragia intracerebral	
57	0 1 2 9	Hemorragia subaracnoidea	
58	0 1 2 9	ENFERMEDAD PERIFEROVASCULAR DEBIDO A ARTERIOSCLEROSIS. Especifique manifestaciones:	
59	0 1 2 9	OTRA ENFERMEDAD CARDIOVASCULAR Especifique:	
		OTRA ENFERMEDAD NO CARDIOVASCULAR	
60	0 1 2 9	Diabetes mellitus	
61	0 1 2 9	Enfermedad urinaria	Especifique:
62	0 1 2 9	Enfisema pulmanar	
63	0 1 2 9	Otra enfermedad pulmanar	Especifique:
64	0 1 2 9	Otra enfermedad impartante	Especifique:
		Resumen de las diagnósticos clínicos:	
70 - 71		Número del examinador	Firma:
72 - 73		Edad	
74		Municipia de residencia	
75 - 80	MES DIA AÑO	Fecha de nacimienta	Revisar:

PROGRAMA DE SALUD DEL CORAZON	DIAGNOSTICO CLINICO	EXAMEN I HOJA DE CODIFICACION SERIE 06

Apellido paterno materna Nombre

Número de expediente _____

Fecha de nacimiento:

COL.	CLAVE	PARTIDA		
		ENFERMEDAD CEREBROVASCULAR		
54	No 0 Sí 1 Quizás 2 Desc. 9	Infarto cerebral embólico	Secundario a:	
55	0 1 2 9	Infarto cerebral oterasclerótico	Especifique signas neuralógicos:	
56	0 1 2 9	Hemorragia intracerebral		
57	0 1 2 9	Hemorragia suboracnoidea		
58	0 1 2 9	ENFERMEDAD PERIFEROVASCULAR DEBIDO A ARTERIOSCLEROSIS. Especifique monifestaciones:		
59	0 1 2 9	OTRA ENFERMEDAD CARDIOVASCULAR Especifique:		
		OTRA ENFERMEDAD NO CARDIOVASCULAR		
60	0 1 2 9	Diabetes mellitus		
61	0 1 2 9	Enfermedad urinaria	Especifique:	
62	0 1 2 9	Enfisema pulmanar		
63	0 1 2 9	Otra enfermedad pulmonar	Especifique:	
64	0 1 2 9	Otro enfermedad importante	Especifique:	
		Resumen de los diagnósticos clínicos:		
70-71		Número del examinador	Firma:	
72-73		Edad		
74		Municipio de residencia		
75-80	MES DIA AÑO	Fecha de nacimiento		Revisor:

FORM APPROVED
BUDGET BUREAU NO. 68-6444
APPROVED THROUGH 12/31/69

PROGRAMA DE SALUD DEL CORAZON | **LABORATORIO** | **EXAMEN I HOJA DE CODIFICACION SERIE 07**

COL.	CLAVE	PARTIDA
1-6		Número de expediente — Apellido paterna — materna — Nombre
7-8	0 7	Serie — Fecha de examen
		EXAMEN DE ORINA
9	Neg. 0 Pos. 1 Dudoso 2 Desc. 9	Azúcar
10	0 1 2 9	Albúmina
		EXAMENES DE SANGRE
11	No reactiva 0 Débilmente reactivo 1 Reactiva 2 Desc. 9	Prueba seralógica para sífilis (VDRL)
12	Neg. 0 Positivo 1 2 3 4 Desc. 9	Lactescencia del suero
13-14		Transmisión (% T a 650 mu)
15-16		Hematocrito (%)
17-19		Glucasa (mg%)
20-23		Glicéridas (mg%)
24-26		Calesterol tatal (mg%)
27-29		Colesteral beto (mg%)
30	Neg. 0 Positivo 1 2 3 4 Desc. 9	Lipaproteínas pre-beta
31-33		Cobre (mcg%)
34-36		Níquel (mcg%)
37-39		Zinc (mcg%)
40-42		Tiempo de fibrinolisina
43-44		Adhesividad de las plaquetas (%)
45-46		Beta - L (décimas de mm)
71	No 0 Sí 1 Desc. 9	En ayunas
72-73		Edad
74		Municipio de residencia
75-80	MES DIA AÑO	Fecha de nacimienta — Revisor:

FORMA G

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el número de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), e iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas médicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

Se alquila local segundo piso, para médicos - Más de 1,000 pies cuadrados - piso terrazo - tres cuartos - dos baños; luz, agua y parking incluídos. A varios minutos del Hospital del Maestro, Centro Médico y Auxilio Mutuo. Para más información, llamar al Dr. Cuevas, teléfonos 767-1004 o 764-2226.

Se alquila local para dispensario médico - Tiene tres oficinas - Teléfono - Ave. Comercial Lomas Verdes. Para más información llamar al teléfono 767-5095.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pila Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras Están semiequipadas. Sitio céntrico próximo a las calle principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas Apartado 20267, Río Piedras, P. R., Teléfono 766-7398

When it's more than a bad cold



your patient can feel better while she's getting better

Achrocidin®

Tetracycline HCl—Antihistamine—Analgesic Compound

Each tablet contains:

ACHROMYCIN® Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Caffeine 30 mg.; Salicylamide 150 mg.; Chlorothen citrate 25 mg.

In bacterial/allergic u.r.i., ACHROCIDIN brings the treatment together in a single prescription—prompt relief of headache and congestion together with effective control of the tetracycline-sensitive organisms frequently responsible for complications leading to prolonged disability in the susceptible patient.

For children and elderly patients you may prefer caffeine-free ACHROCIDIN Syrup. Each 5 cc contains: ACHROMYCIN (Tetracycline) equivalent to Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Salicylamide 150 mg.; Ascorbic Acid (C) 25 mg.; Pyrilamine Maleate 15 mg.

Average adult dosage: 2 tablets four times daily, given at least one hour before, or two hours after meals.

Contraindications: History of hypersensitivity to any component.

Warning: If renal impairment exists, even usual doses may lead to liver toxicity. Under such conditions, lower than usual doses are indicated and, if therapy is prolonged, serum level determinations may be advisable. Hypersensitive individuals may develop a photodynamic reaction to natural or artificial sunlight during use. Individuals with a history of photosensitivity reactions should avoid direct exposure while under treatment, which should be discontinued at first evidence of skin discomfort.

Precautions: Some individuals may experience drowsiness, anorexia, and slight gastric distress. If excessive drowsiness occurs, it may be necessary to increase the interval between doses. Persons on full dosage should not operate any vehicle. Use may result in overgrowth of nonsusceptible organisms. If infections appear during therapy, appropriate measures should be taken. Infections caused by beta-hemolytic streptococci should be treated for at least 10 full days to help prevent rheumatic fever or acute glomerulonephritis. Use of tetracycline during tooth development may cause discoloration of teeth.

Adverse Reactions: Gastrointestinal—anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. Skin—maculopapular and erythematous rashes (a case of exfoliative dermatitis has been reported); photosensitivity; onycholysis and discoloration of nails (rare). Kidney—rise in BUN, apparently dose related. Hypersensitivity reactions—urticaria, angioneurotic edema, anaphylaxis. In young infants, bulging fontanels following full therapeutic dosage has been reported. This has disappeared rapidly when drug was discontinued. Teeth—dental staining (yellow-brown) in children of mothers given tetracycline during the latter half of pregnancy and in children given the drug during the neonatal period, infancy, and early childhood. Enamel hypoplasia has been seen in a few children. Blood—anemia, thrombocytopenic purpura, neutropenia, eosinophilia. Liver—cholestasis (rare), usually at high dosage. If adverse reaction or idiosyncrasy occurs, discontinue medication and institute appropriate therapy.

Lederle

349-8



NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extraoiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

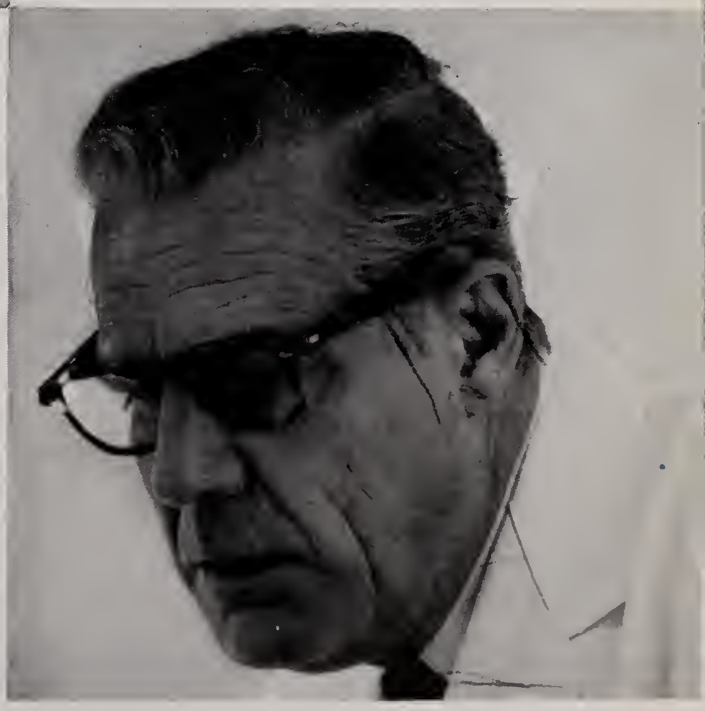
PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.



"He's doing better.
X-rays show a duodenal ulcer,
but the bleeding has definitely
slowed down."

"Hemoglobin is still low,
so I'd give him at least
one more unit of blood and
continue the milk and Maalox."



Maalox works fast, does not constipate, and is pleasant to take... no taste fatigue.

3 dosage forms for convenience, flexibility and variety:
Maalox Suspension (12 fl. oz.). Maalox No. 1 Tablets
(0.4 Gm.) : sugar-free and low in sodium.
Maalox No. 2 Tablets (0.8 Gm.) : double strength
for double antacid action.

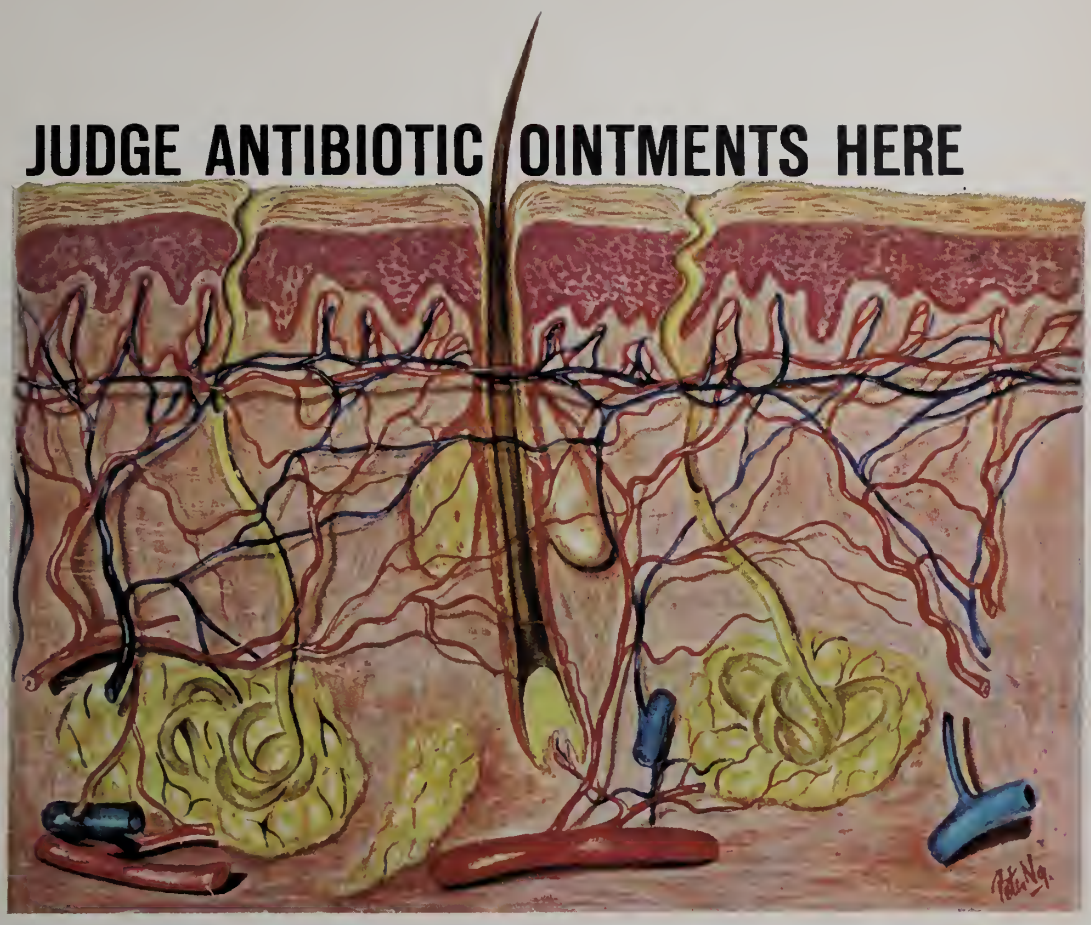
Maalox®
MAGNESIUM-ALUMINUM HYDROXIDE

WILLIAM H. RORER, INC. FORT WASHINGTON, PA.

RORER


Barbara Putnam said safety belts made her feel strapped in.
What's your excuse?
Advertising contributed for the public good.
ADVERTISING COUNCIL
GREEN CROSS FOR SAFETY

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®
brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

Mild ulcerative colitis may be triggered here...



In mild ulcerative colitis, a number of factors can precipitate an attack: for instance, dietary indiscretion, such as eating raw foods, or emotional overreaction, such as that aroused by financial difficulties. No matter what causes the patient's sensitive colon to "act up," he soon suffers from acute discomfort...and often, from anxiety and apprehension as well. Such patients frequently respond well to adjunctive dual-action Librax® therapy.

Librax combines, in a single convenient capsule, the well-known antianxiety effect of Librium® (chlordiazepoxide HCl) and the dependable anticholinergic/antispasmodic effect of Quarzan® (clidinium Br). Therefore, as Librax helps to relieve the patient's excessive anxiety and reduce his overreaction to stress, it also at the same time, helps to control hypersecretion and hypermotility, thus relieving spasm and abdominal discomfort.

With Librax, the dosage schedule is simple: 1 or 2 capsules, t.i.d. or q.i.d., will in most cases bring the patient significant relief of both the emotional and physical elements that contribute to his psychovisceral disorder.

Before prescribing, please consult complete product information, a summary of which follows.

INDICATIONS: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

CONTRAINDICATIONS: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide.

WARNINGS: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

PRECAUTIONS: In elderly and debilitated limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and toler

or here.



ed). Though generally not recommended, if ombination therapy with other psychotropics eems indicated, carefully consider individual harmacologic effects, particularly in use of po- ntiating drugs such as MAO inhibitors and henothiazines. Observe usual precautions in resence of impaired renal or hepatic function. aradoxical reactions (*e.g.*, excitement, stimula- on and acute rage) have been reported in psy- iatric patients. Employ usual precautions in eatment of anxiety states with evidence of im- ending depression; suicidal tendencies may be resent and protective measures necessary. Vari- ble effects on blood coagulation have been eported very rarely in patients receiving the rug and oral anticoagulants; causal relation- ip has not been established clinically.

ADVERSE REACTIONS: No side effects or anifestations not seen with either compound one have been reported with Librax. When lordiazepoxide hydrochloride is used alone, rowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver-function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics, and/or low

two good reasons for prescribing LIBRAX®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

ROCHE
LABORATORIES
Division of Hoffmann-La Roche Inc.



Nose clear as a whistle

(THANKS TO DIMETAPP®)

Dimetapp Extentabs® does an outstanding job of helping to clear up the stuffiness, drip and congestion of colds and upper respiratory allergies and infections. Each Extentab keeps working up to 12 hours. And for most patients drowsiness or overstimulation is unlikely. Try Dimetapp. It clearly works.

FOR UPPER RESPIRATORY ALLERGIES AND INFECTIONS

Dimetapp Extentabs®

Dimetane® (brompheniramine maleate), 12 mg.; phenylephrine HCl, 15 mg.; phenylpropanolamine HCl, 15 mg.

UP TO 12 HOURS CLEAR BREATHING ON ONE TABLET

Indications: Dimetapp is indicated for symptomatic relief of the allergic manifestations of respiratory illnesses, such as the common cold and bronchial asthma, seasonal allergies, sinusitis, rhinitis, conjunctivitis, and otitis.
Contraindications: Hypersensitivity to antihistamines. Not recommended for use during pregnancy.
Precautions: Until patient's response has been determined, he should be cautioned against engaging in operations requiring alertness. Administer with care to patients with cardiac or peripheral vascular diseases or hypertension.
Side Effects: Hypersensitivity reactions including skin rashes, urticaria, hypotension and thrombocytopenia, have been reported on rare occasions. Drowsiness, lassitude, nausea, giddiness, dryness of the mouth, mydriasis, increased irritability or excitement may be encountered.
Dosage: 1 Extentab morning and evening.
Supplied: Bottles of 100 and 500.

A.H. ROBINS COMPANY
RICHMOND, VA. 23220

A·H·ROBINS

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

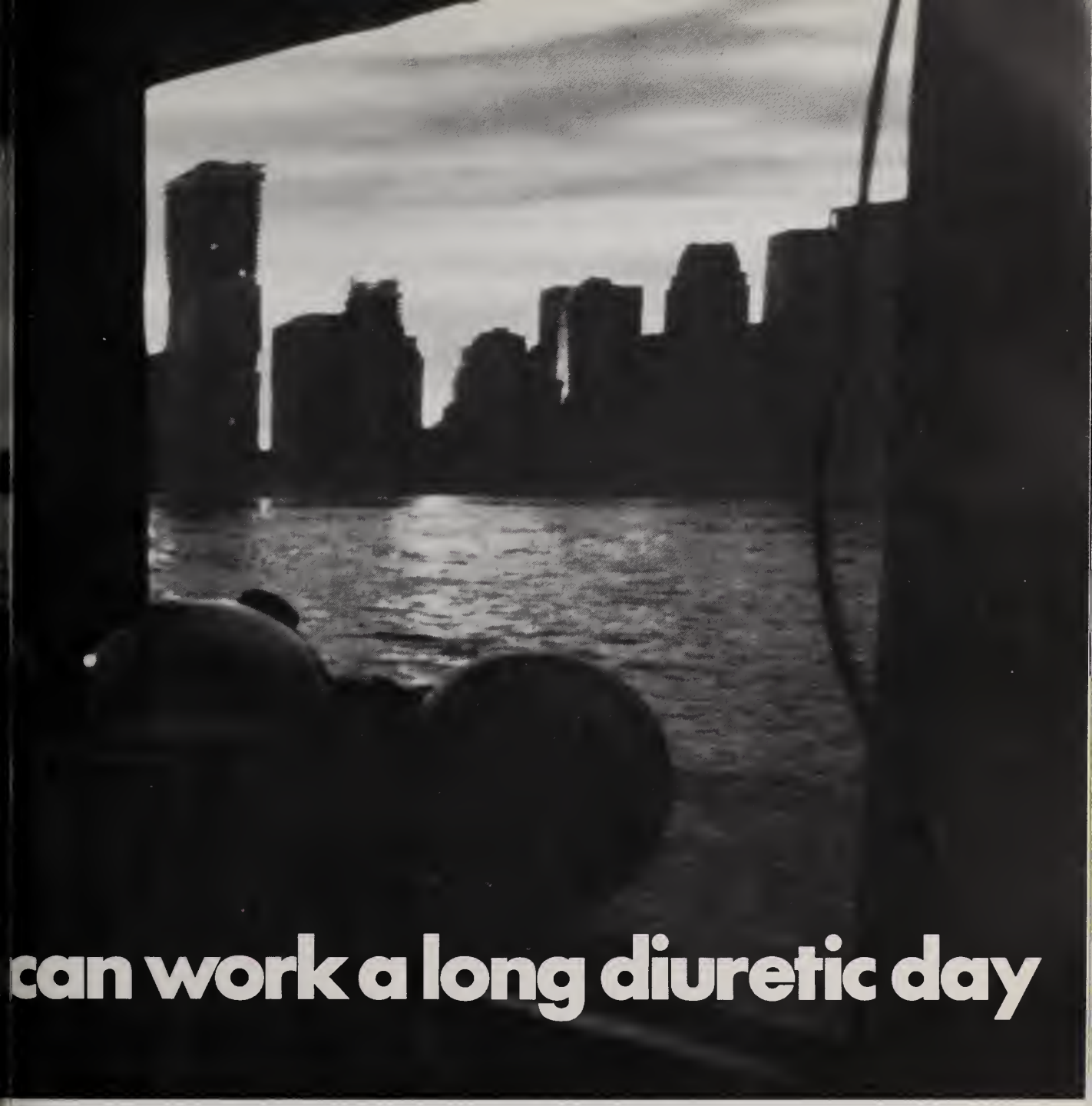
EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistémicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.


A little Hygroton
chlorthalidone



can work a long diuretic day

ll the way from one daily tablet to the next
o help control edema and hypertension

ts prolonged action usually provides smooth, sustained diuretic effectiveness; real one-a-day dosage, right from the start; convenience and economy.

Hygroton, chlorthalidone, can cause side effects. And it's contra-indicated in hypersensitivity to the drug and severe renal and hepatic diseases.

Check the prescribing information. It's summarized on the next page.

Geigy



A little Hygroton® can work a long diuretic day

chlorthalidone

Indications: Hypertension and many types of edema involving retention of salt and water.

Contraindications: Hypersensitivity and most cases of severe renal or hepatic diseases.

Warning: With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has been required frequently and deaths have occurred. Discontinue enteric-coated potassium supplements immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur.

Use with caution in pregnant women and nursing mothers since the drug may cross the placental barrier and appear in cord blood and since thiazides may appear in breast milk. The drug may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. When used in women of childbearing age, balance benefits of drug against possible hazards to fetus.

Precautions: Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. Because of the possibility of progression of renal damage, periodic determination of the BUN is indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated.

Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria.

Take special care in cirrhosis or severe ischemic heart disease and in patients receiving corticosteroids, ACTH, or digitalis. Salt restriction is not recommended.

Adverse Reactions: Nausea, gastric irritation, vomiting, anorexia, constipation and cramping, dizziness, weakness, restlessness, hyperglycemia, glycosuria, hyperuricemia, headache, muscle cramps, orthostatic hypotension, which may be potentiated when chlorthalidone is combined with barbiturates, narcotics or alcohol, aplastic anemia, leukopenia, thrombocytopenia, agranulocytosis, impotence, dysuria, transient myopia, skin rashes, urticaria, purpura, necrotizing angiitis, acute gout, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Other reactions reported with this class of compounds include: jaundice, xanthopsia, paresthesia, and photosensitization.

Average Dosage: 50 or 100 mg. with breakfast daily or 100 mg. every other day.

Availability: White, single-scored tablets of 100 mg. and aqua tablets of 50 mg., in bottles of 100 and 1000.

(B)46-230-E

For full details, please see the complete prescribing information.

Geigy

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

Cuando comen lo que les gusta y no lo que deben...



ayude a cubrir "el déficit" de vitaminas con

Unicap Therapeutic

10 vitaminas combinadas con 7 minerales

Cada tableta contiene:

Vitamina A	1.5 mg.
Vitamina D	10 mcg.
Mononitrato de Tiamina (B-1)	10 mg.
Riboflavina (B-2)	10 mg.
Acido Ascórbico (C) (como ascorbato de sodio)	300 mg.
Niacinamida	100 mg.
Clorhidrato de Piridoxina (B-6)	2 mg.
Pantotenato de Calcio	20 mg.
Cobalamina (B-12) (como concentrado de cobalamina)	20 mg.
Vitamina E	30 Unidades Internacionales
Hierro (a partir de 50 mg. de sulfato ferroso)	10 mg.
Yodo (como yoduro de potasio)	0.15 mg.
Calcio (como carbonato)	50 mg.
Cobre (como sulfato)	1 mg.
Manganeso (como sulfato)	1 mg.
Magnesio (como sulfato)	6 mg.
Potasio (como sulfato)	5 mg.

Posología: Adultos y niños mayores de 6 años – 1 tableta diaria.

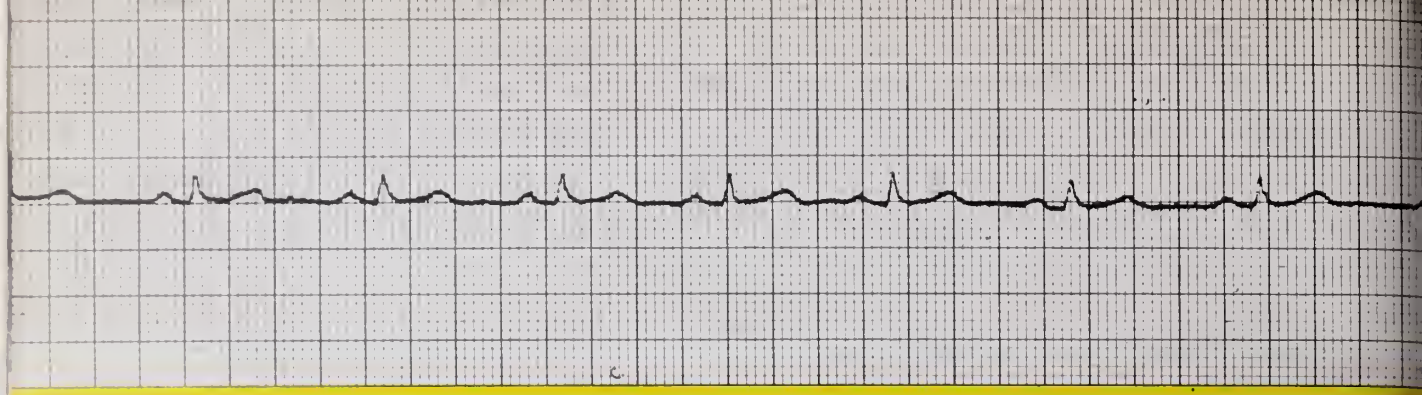
Presentación: Frascos de 30 y 90

Upjohn

PR 5226.1 MAY, 1969

6R11 MARCA REGISTRADA EN E.U.A.: UNICAP THERAPEUTIC

UPJOHN INTER-AMERICAN CORPORATION / CAPARRA / PUERTO NUEVO



When disease is ruled out and psychic tension is implicated

Valium® (diazepam) helps relax the patient and relieve his somatic symptoms

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

ROCHE

Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110



BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

PITUITARY TUMORS IN MICE INJECTED WITH DELESTROGEN 236
Arturo A. Ydrach, MD

BLOOD ALCOHOL LEVELS AND FATAL TRAFFIC ACCIDENTS 244
Sidney Kaye, PhD

PREGNANCY AFTER CARDIAC SURGERY 250
Francisco X. Veray, MD, Juan J. Hernández Cibes, MD, FACOG, Francisco Raffucci, MD, FACS, and Iván A. Pelegrina, MD, FACOG

PRACTICA DE GRUPO: 258
Modalidad en la Prestación de Servicios Médicos
Onán E. Pérez, MIIA

CONSUMPTION COAGULOPATHIES: 264
A Review
C. H. Ramírez-Ronda, MD

EDITORIALES 272
El Médico y los Accidentes Automovilísticos
Protección de la Salud en un Mundo que se Achica

CARTA 275

ACTUALIDADES MEDICAS 276

NOTICIAS 279

DISPLAY
SHELVES

VOL. 61 JULIO, 1969 NUM. 7

Why DBI-TD (phenformin HCl) is the only significant advance in oral diabetes therapy since sulfonylureas



□ glucose ○ insulin

1 Only DBI-TD does more than just lower blood sugar–it directs sugar primarily to where it is most needed... in muscle.

In the maturity-onset diabetic, blood sugar is elevated, but apparently not enough glucose enters muscle. Unlike other agents, DBI-TD increases glucose utilization primarily in skeletal muscle where sugar is needed.

2 Only DBI-TD actually promotes weight loss in the maturity-onset diabetic who is overweight.

All oral drugs *except* DBI-TD increase insulin release, which suppresses lipolysis and can accelerate lipogenesis. Thus DBI-TD, by avoiding insulin oversecretion, appears to ease—rather than aggravate—the weight problem in patients unresponsive to diet alone.

3 Only DBI-TD, among oral agents, helps counterbalance the inefficient action of the diabetic's own insulin.

There is increasing evidence that many overweight maturity-onset diabetics have higher than normal blood insulin levels, but this insulin is not efficient in promoting muscle glucose uptake. Unlike all other oral agents, DBI-TD helps control diabetes by selectively moving sugar into muscle without further increasing insulin levels.

4 Only DBI-TD, because of its unique action, reduces the risk of secondary failure and hypoglycemic reaction.

DBI-TD is the only agent that lowers blood sugar without stimulating the release of insulin from the pancreas. Secondary failures are infrequent with DBI-TD, and there is relative freedom from hypoglycemic reaction when DBI-TD is used alone.

a more
physiological approach
to begin with

THE SPRINGS A COUNTWAY
LIBRARY OF MEDICINE
29 SEP 1969

DBI®-TD

(phenformin HCl)

timed-disintegration capsules 50 mg.

Dosage: 1 to 3 capsules daily. **Side Effects:** Gastrointestinal, occurring more often at higher dosage levels, abate promptly upon dosage reduction or temporary withdrawal. **Adverse Reaction:** Urticaria. **Precautions:** Occasionally an insulin-dependent patient will show "starvation" ketosis (acetonuria without hyperglycemia) which must be differentiated from "insulin lack" ketosis which is accompanied by acidosis, and treated accordingly. Lactic acidosis has been reported in nondiabetics and diabetics treated with insulin, with diet, and with DBI. Question has arisen regarding possible contribution of DBI to lactic acidosis in patients with renal impairment and azotemia and also those with severe hypotension secondary to myocardial or bowel infarction. Periodic B.U.N. determination should be made when DBI is administered in the presence of chronic renal disease. DBI should not be used when there is significant azotemia. Any cardiovascular lesion that could result in severe or sustained hypotension, which may itself lead to development of lactic acidosis, should be considered cause for immediate discontinuation of DBI at least until normal blood pressure has been restored and is maintained without vasopressors. Should lactic acidosis occur from any cause, vigorous attempts should be made to correct circulatory collapse, tissue hypoxia, and pH. **Contraindications:** Severe hepatic disease, renal disease with uremia, cardiovascular collapse. Not recommended without insulin in acute complications of diabetes (metabolic acidosis, coma, severe infections, gangrene, surgery). ***Pregnancy Warning:*** *During pregnancy, until safety is proved, use of DBI, like other oral hypoglycemic drugs, is to be avoided.* **Also Available:** DBI tablets 25 mg. *Consult product brochure.*

USV

USV PHARMACEUTICAL CORP., New York, N.Y. 10017
Producers of ARLIDIN® (nylidrin HCl)


A little Hygroton
chlorthalidone



an work a long diuretic day

the way from one daily tablet to the next
nelp control edema and hypertension

prolonged action usually provides smooth, sustained diuretic
ctiveness; real one-a-day dosage, right from the start; convenience
l economy.

groton, chlorthalidone, can cause side effects. And it's contra-
cated in hypersensitivity to the drug and severe renal and
patic diseases.

eck the prescribing information. It's summarized on the next page.

Geigy



A little Hygroton® can work a long diuretic day

chlorthalidone

Indications: Hypertension and many types of edema involving retention of salt and water.

Contraindications: Hypersensitivity and most cases of severe renal or hepatic diseases.

Warning: With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has been required frequently and deaths have occurred. Discontinue enteric-coated potassium supplements immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur.

Use with caution in pregnant women and nursing mothers since the drug may cross the placental barrier and appear in cord blood and since thiazides may appear in breast milk. The drug may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. When used in women of childbearing age, balance benefits of drug against possible hazards to fetus.

Precautions: Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. Because of the possibility of progression of renal damage, periodic determination of the BUN is indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated.

Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria.

Take special care in cirrhosis or severe ischemic heart disease and in patients receiving corticosteroids, ACTH, or digitalis. Salt restriction is not recommended.

Adverse Reactions: Nausea, gastric irritation, vomiting, anorexia, constipation and cramping, dizziness, weakness, restlessness, hyperglycemia, glycosuria, hyperuricemia, headache, muscle cramps, orthostatic hypotension, which may be potentiated when chlorthalidone is combined with barbiturates, narcotics or alcohol, aplastic anemia, leukopenia, thrombocytopenia, agranulocytosis, impotence, dysuria, transient myopia, skin rashes, urticaria, purpura, necrotizing angiitis, acute gout, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Other reactions reported with this class of compounds include: jaundice, xanthopsia, paresthesia, and photosensitization.

Average Dosage: 50 or 100 mg. with breakfast daily or 100 mg. every other day.

Availability: White, single-scored tablets of 100 mg. and aqua tablets of 50 mg., in bottles of 100 and 1000.

(B)46-230-E

For full details, please see the complete prescribing information.

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE
PRODUCTOS
PARA PACIENTES
QUE UD. VE
A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistémicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.

if he exercises



if he stops smoking if he takes Arlidin® (nylidrin HCl) the improvement can be significant!

in peripheral vascular disease: **EXERCISE** "Exercise is the specific physiologic stimulus for producing vasodilation in skeletal muscle."[1] **SMOKING** "The first and most important consideration of treatment is firm insistence that the patient stop smoking immediately and permanently. The reason for this is the powerful vasoconstricting action of smoking which is responsible for diminishing the peripheral circulation to a great degree."[2] **ARLIDIN** The overall physiological effect of a therapeutic agent should be similar to exercise—that is, both to increase cardiac output and to produce peripheral vasodilation.[3] "The ideal agent should be administered in the same way that we prescribe exercise—that is, three or four times a day for many years rather than for several weeks. The therapeutic goal is to increase blood flow through the capillary beds by way of a patent and constantly expanding collateral blood supply. At this time, I am aware of only one agent which fulfills the requirements as outlined above, namely nylidrin (Arlidin)."[3]

Contraindications: Acute myocardial infarction. (Following myocardial infarction, the initiation or reestablishment of this therapy should be undertaken in the same way as physical exercise. After a reasonable healing period, gradual upward adjustment of dosage to therapeutic levels may be attempted.) **Precautions:** Use with caution in the presence of a recent myocardial lesion, paroxysmal tachycardia, severe angina pectoris and thyrotoxicosis. **Adverse Reaction:** Occasional palpitation. **Dosage:** ½ to 1 tablet (3 to 6 mg.) three or four times a day is the usual effective dosage; increased, if necessary, to 2 tablets three or four times a day. Parenterally, 0.5 cc. by subcutaneous or intramuscular injection; increased gradually to 1 cc. one or more times daily, as needed. **Available:** Tablets: 6 mg. scored, bottles of 50, 100, and 500. Parenteral: 5 mg. per cc., 1 cc. ampuls (6 per box); 10 cc. multiple-dose vials (1 per box). **References:** 1. deCrinis, K., Redisch, W. and Steele, J.M.: Proc. Soc. Exper. Biol. Med. *102*:29, 1959. 2. Samuels, S.S.: Med. Times *88*:332, 1960. 3. Karpman, H.L.: Canad. Med. Ass. J. *94*:457, 1966.

arlidin®
(nylidrin HCl)

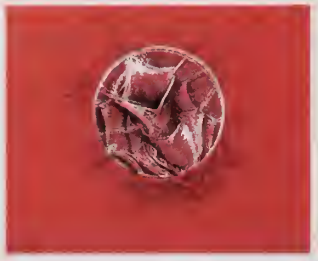
USV

USV PHARMACEUTICAL CORPORATION
New York, N.Y. 10017

IN PATIENT BENEFITS
what does CHYMORAL's faster action mean? It can mean:

- Edema and inflammation subside twice as fast—healing time cut in half.
- The patient is restored to normal activities twice as fast.
- Lesions heal in less time—and the physical appearance of the patient improves twice as fast.
- Hospital stay...convalescent period...medication costs may be cut in half.

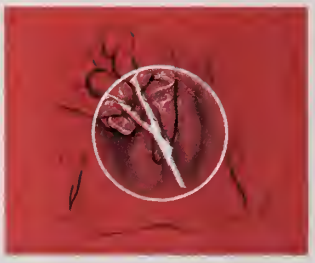
The benefits of CHYMORAL cover many conditions and the results[1] are worthy of mention.



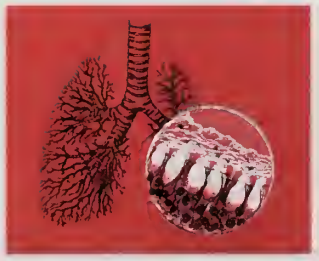
Surgical trauma

4123 cases **91%** had good/excellent results

3470 cases **89%** had good/excellent results



Episiotomy and pelvic inflammation



Inflammation of respiratory tract

2389 cases **80%** had good/excellent results

1055 cases **75%** had good/excellent results



Inflammatory dermatoses



Traumatic lesions

6929 cases **93%** had good/excellent results

2645 cases **83%** had good/excellent results



Eye, ear, nose and throat inflammations

Rx. **CHYMORAL®—Enzyme tablets**

ARMOUR PHARMACEUTICAL COMPANY, Chicago, Illinois 60690, U.S.A.

[1]Based on clinical reports compiled by the Medical Division of Armour Pharmaceutical Company

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:
Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:
El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:
Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.



The Fortunate One.

Her urinary tract infection reveals itself through pain and discomfort.

While the pain and discomfort of a G.U. infection are anything but pleasant, the patient may be luckier than she realizes. That burning sensation (and/or frequency, urgency, dysuria) is a usually reliable sign of a urinary tract infection. And it's her good fortune that her infection won't go undetected...or untreated.

Azo Gantanol® therapy usually provides analgesic action within one-half hour, while control of the infection begins within two hours. Azo, a specific urinary analgesic, soothes inflamed mucosa to give symptomatic relief. At the same time, the antibacterial component, Gantanol (sulfamethoxazole), achieves therapeutic levels in the blood and urine, with diffusion into interstitial fluids. Azo Gantanol—a good choice when urinary tract infection reveals itself through symptomatic distress.

Before prescribing, please consult complete product information, a summary of which appears on opposite page.

Azo Gantanol®

(Each tablet contains 0.5 Gm sulfamethoxazole and 100 mg phenazopyridine HCl.)

Azo for the pain Gantanol® (sulfamethoxazole) for the pathogens

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Urinary tract infections with associated pain or discomfort when due to susceptible organisms; prophylactically in urologic surgery, catheterization and instrumentation.

Contraindicated in sulfonamide-sensitive patients, pregnant females at term, premature infants, newborn infants during the first three months of life, glomerular nephritis, severe hepatitis, uremia and pyelonephritis of pregnancy with gastrointestinal disturbances.

Warnings: Use only after critical appraisal in patients with liver damage, renal damage, urinary obstruction or blood dyscrasias. If toxic or hypersensitivity reactions or blood dyscrasias occur, discontinue therapy. In closely intermittent or prolonged therapy, blood counts and liver and kidney function tests should be performed.

Precautions: Observe usual sulfonamide therapy precautions including maintenance of an adequate fluid intake. Use with caution in patients with histories of allergies and/or asthma. Patients with impaired renal function should be followed closely since renal impairment may cause excessive drug accumulation. Occasional failures may occur due to resistant microorganisms. Not effective in virus and rickettsial infections.

Adverse Reactions: Headache, nausea, vomiting, urticaria, diarrhea, hepatitis, pancreatitis, blood dyscrasias, neuropathy, drug fever, skin rash, Stevens-Johnson syndrome, injection of the conjunctiva and sclera, petechiae, purpura, hematuria or crystalluria may occur, in which case the dosage should be decreased or the drug withdrawn.

Dosage: Adults—4 tablets initially, then 2 tablets morning and evening.

How Supplied: Tablets, bottles of 50.



Roche LABORATORIES

Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Success is something you can't leave a son



In today's complex and specialized world, success depends more and more on whether he gets a college education.

But he may not be able to get one unless the nation's colleges can answer some serious questions: How to cope with rapidly increasing student enrollments? How to keep the quality of education constantly improving with more modern laboratories, better libraries, new classrooms? How to attract able new faculty members?

Your support will help colleges answer these questions . . . help them make your son ready for his world.

Give to the college of your choice.

COUNCIL FOR FINANCIAL AID TO EDUCATION



advertising contributed for the public good



Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®

PITUITARY TUMORS IN MICE INJECTED WITH DELESTROGEN

Arturo A. Ydrach, MD

Mice of the T. M. strain maintained on the Rockland rat diet supplemented with hens eggs, egg yolk, or egg lipids develop a high incidence of lung tumors, lymphosarcomas and mammary cancer (1, 2). It has been demonstrated that in these mice there is a decrease in the relative number of the acidophile cells and an increase in the basophile cells of the adenopituitary (3). In mice of the C57 B1. strain maintained on a diet supplemented with egg yolk the acidophile cells decreased from 57.9 percent to 45.7 percent, while the basophile cells slightly increased (3). Moreover, 12 percent of the experimental mice developed tumors of the pituitary, some of which were chromophobe adenomas of the anterior lobe, while others originated from the intermediate lobe (4).

On the other hand, it has been demonstrated that prolonged administration of large doses of estrogen to mice caused the development of mammary cancer (5, 6), lymphosarcoma (7, 8, 9), and a considerable decrease of the chromophile cells (both acidophile and basophile) in their pituitaries. Under the effect of large doses of estrogen, mice of the C57 B1. strain developed pituitary tumors, which were described as chromophobe adenomas of the anterior lobe (10).

On the basis of the above data it was suggested that estrogen present in eggs might be responsible for the carcinogenic effect and for the changes in the pituitaries of the mice on the diets supplemented with eggs or egg lipids. This consideration motivated the present study.

It has been known for some time that following estrogen administration the size of the pituitary increases due to an increase in the number of chromophobe cells (5, 11, 12, 13). In 1936 three groups of investigators reported the production of pituitary tumors in mice and rats by prolonged administration of estrogen. Cramer and Horning (6) painted on the skin of mice estrin dissolved in chloroform and several of the animals developed tumors of the pituitary. Similar results were obtained by Zondek (14) in rats which were injected twice weekly with large doses of follicullin for an average of over 16 weeks. The female sex hormone inhibited growth of the animals, caused atrophy of the genital glands in both males and females, and pituitary tumors only in males. The pituitary tumors were described as chromophobe adenomas. McEuen, Selye and Collip (15) who administered large doses of estrone to rats for over 300 days, found that 3 of the animals developed chromophobe adenomas of the anterior lobe and one an intermediate lobe tumor.

Gardner and Strong (10) studied the effect of natural and synthetic estrogens upon the pituitary of mice of various strains. The estrogens dissolved in sesame oil were injected subcutaneously in the amount of 8.3 to 250 gammas weekly. They found that of the mice of seven strains injected with estrogen only those of the C-57 strain presented enlargement of the pituitary gland. In 15 of 106 mice the pituitary weighed over 12 milligrams. The pituitaries weighing over 26 milligrams showed generalized increase in the chromophobe cells and distention of the sinusoids. Finally, glands weighing 47 to 87 milligrams consisted largely of chromophobe cell adenomas.

Wolfe and Wright (16) found that in the adenohypophysis of rats receiving large doses of estrogen, the acidophile cells decreased from 34.2 percent to 14.1 percent and the basophile cells from 3 percent to 0.1 percent after 80 days of treatment. Both of these cells were found to completely disappear in rats treated for longer periods and in many cases chromophobe adenomas developed.

In hamsters, estrogen affects the intermediate lobe

From the University of Puerto Rico School of Medicine, Department of Anatomy, under the direction of Dr. Josel Szepsenwol, San Juan, Puerto Rico.

Premio Boletín de la Asociación Médica de Puerto Rico auspiciado por Cyanamid Borinquen Corp. (Lederle) a trabajo de investigación llevado a cabo por un estudiante de medicina.

of the pituitary. Vázquez-López (17) found that of 3 male and 3 female hamsters receiving large doses of estradiol benzoate from the age of six weeks, 2 males and one female developed intermediate lobe tumors of the pituitary. In a second series of experiments hamsters were treated with large doses of diethylstilbesterol from the age of 4 to 5 months, and five developed intermediate lobe tumors of the pituitary.

Similar results were obtained by Koneff, Simpson and Evans (18), who administered large doses of diethylstilbesterol to hamsters from the age of 41 to 44 days. They found that the pars intermedia of the pituitary of many of the hamsters underwent growth and invaded the pars nervosa and the pars distalis. In the anterior lobe of these hamsters the basophile cells were depleted of granules in both males and females, while the acidophile cells increased in number and size only in the males, not in the females.

Succinctly, there seems to be a fundamental difference in the reaction of the pituitary to large doses of estrogen, between mice and hamsters. In the former, mostly the anterior lobe is affected culminating in chromophobe adenomas, while in the latter, tumors originate in the intermediate lobe.

Materials and Methods

Sixty-eight mice of the C-57 Bl. strain were injected subcutaneously each with 10 gammas of Delestrogen *(a slow acting estrogen), once every two weeks. The first injection was done when the mice were five to ten days old. Six experimental mice, and six controls, were killed at the age of six weeks, after each having received a total of 30 gammas of Delestrogen. The remaining sixty-two died or were killed when moribund, at ages varying from 96 days to 674 days. The pituitaries of these mice were fixed with Bouin's fluid, sectioned serially at five microns and stained with Szepsenwol, Roman and Santiago's (3) modification of Glenner and Lillie's technique (19). With this technique the granules in the acidophile cells stain red, those in the basophile blue-black, while the chromophobe cells are either agranular or have gray granules. Counts of the three main types of cells in the adenohypophysis were done following Chalkley's method (20).

The testes, ovaries, uteri and vagina, adrenals, spleen and thymus were also fixed with Bouin's fluid, sectioned and stained with hematoxylin and eosin. The ovarian function was studied by daily vaginal smears when the mice were 5 months old.

** The Delestrogen was provided by Squibb, to whom we are very grateful.*

Results

None of the females receiving Delestrogen reproduced. Unlike the controls which had a normal estrous cycle, the experimental females were in permanent anestrous. The ovaries of these females, killed at the age of 8 to 12 months, had no mature follicles nor corpora lutea. The testes in the experimental males were less than half the size of those of the controls and the seminiferous tubules showed no mature spermatozoa.

In the pituitaries of the six experimental mice six weeks old, selected at random, the acidophile cells decreased from 56.65 percent, found in the controls, to 39.79 percent, while the basophile cells slightly increased. In 12 other experimental mice ranging in age from 98 to 477 days old, the acidophile cells of the adenopituitary further decreased to 30.62 percent while the basophile cells decreased only slightly (Table I).

Nineteen of the 62 experimental mice, or 30.64 percent, developed pituitary tumors. Nine of these originated in the anterior lobe; six others in the intermediate lobe, and in the remaining four it was difficult to ascertain the exact site of origin. The average life span of these 19 mice was 573 days; the average amount of Delestrogen each of them received was 405 gammas (Table II). Many of the remaining experimental mice had enlarged pituitaries due mainly to sinusoidal dilatation. We would like to emphasize the fact that even in the mice which developed adenomas, the acidophile population in the adenopituitary did not completely disappear as previously reported (16).

In a horizontal section (Fig. 4) of a normal pituitary (Fig. 1) the intermediate lobe has the appearance of a widely opened V (covering the neurohypophysis) which is separated below and anteriorly by a cleft from the pars distalis of the gland. The latter appears to consist of two masses joined anteriorly and inferiorly by an isthmus and continuous posteriorly and above with the two rami of the intermediate lobe. In the case of intermediate lobe tumors (Fig. 2) the neurohypophysis is invaded and is impossible to find. The anterior lobe (Fig. 5) is compressed to a narrow band at the periphery of the tumor from which it is separated by remnants of the cleft. It consists of normal acidophile, basophile, and chromophobe cells. The cells of the tumor, which are often columnar, are larger in size than those of the anterior lobe; they have large nuclei and prominent nucleoli (Figs. 6 and 7). They are usually organized in acini or follicles

TABLE I: PERCENTAGES OF ACIDOPHILE AND BASOPHILE CELLS IN ADENOPITUITARY

	Acidophile		Basophile	
	Control Percent	*Experimental Percent*	*Control Percent*	*Experimental Percent*
Mice 6 weeks old				
Mean	56.65	39.79	1.75	2.45
$X_a - X_b$		−16.86		0.70
S_x	8.46	10.31	0.53	1.46
t		3.10		1.11
Mice 14-54 weeks old				
Mean	57.90	30.62	2.90	1.56
$X_a - X_b$		−27.28		−1.34
S_x	14.15	29.80	1.73	3.49
t		5.63		1.62

TABLE II: PITUITARY ADENOMAS IN EXPERIMENTAL MICE

Sex	Age (days)	Delestrogen Dose (µg)	Pituitary Adenoma Origin
F	401	280	Intermediate Lobe
M	465	330	Undetermined
M	477	340	Intermediate Lobe
M	514	360	Undetermined
M	526	370	Undetermined
M	552	390	Anterior Lobe
F	555	390	Anterior Lobe
M	555	390	Intermediate Lobe
F	555	390	Intermediate Lobe
M	559	390	Intermediate Lobe
M	560	400	Undetermined
M	629	440	Anterior Lobe
M	631	450	Anterior Lobe
M	632	450	Intermediate Lobe
F	632	450	Anterior Lobe
M	634	450	Anterior Lobe
M	655	460	Anterior Lobe
M	674	480	Anterior Lobe
F	674	480	Anterior Lobe
19	573 days (Ave.)	405 µg (Ave.)	9 Anterior Lobe 6 Intermediate Lobe 4 Undetermined Origin

19 of the 62 experimental mice represent 30.64 percent of the group.

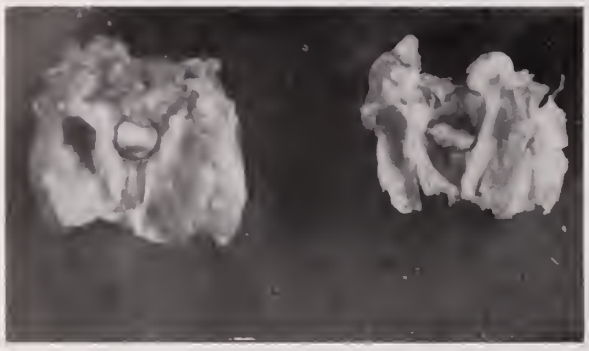


Fig. 1: *Normal pituitaries of two control mice of C-57 Black strain, 500 and 510 days old. The pituitaries are encircled in black and the two trigeminal nerves pass lateral to it. These gross specimens were fixed in Bouin's fluid together with the base of the skull.*

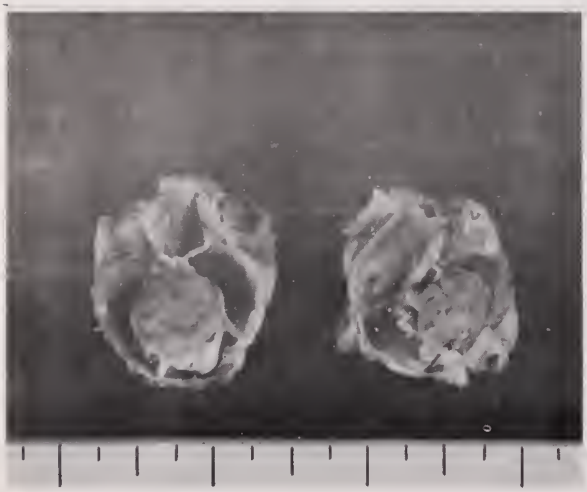


Fig. 2: *Pituitary tumors of mice of the C-57 Bl. strain treated with estrogen. Intermediate lobe tumor of a mouse 401 days old (to the left). Chromophobe adenoma of the anterior lobe of a mouse 552 days old (to the right).*



Fig. 3: *Section of pituitary with chromophobe adenoma, (Anilin and eosin B x 100). The intermediate lobe is compressed to a narrow band by the tumorous anterior lobe, from which it is separated by remnants of the cleft.*

and their nuclei are at the base of the cells. Their cytoplasm is filled with granules which are usually slightly larger in size than those of the normal acidophile cells of the adenopituitary. Mitotic figures were numerous in the intermediate lobe tumors and the red granules did not disappear from the cytoplasm during cell division (Fig. 7). Another observation of interest was that the two mice with the acidophile intermediate lobe tumors were not larger than the other experimental mice; one that was killed at the age of 479 days weighed 30 grams and the other one at the age of 401 days, 24 grams.

The chromophobe adenomas (Fig. 3) of the anterior lobe of the pituitary were found to be multifocal (Fig. 8). Each tumorous nodule consisted of spherical ovoid or polygonal cells with large nuclei more or less centrally located and prominent nucleoli. Their cytoplasm contained no granules (Fig. 9). The tumor nodules were separated from one another by normal adenopituitary cells of which many were acidophile and a few basophile. In the intermediate lobe (Fig. 3) which was compressed by the tumorous masses, the cells had their normal appearance. They were columnar and their cytoplasm was slightly basophilic. Remnants of the cleft still separated the intermediate lobe from the tumorous anterior lobe.

In the sixty-five mice on the control group no pituitary tumors were found.

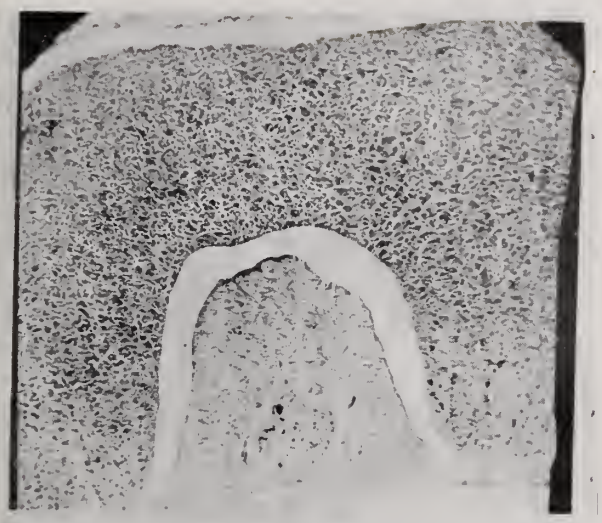
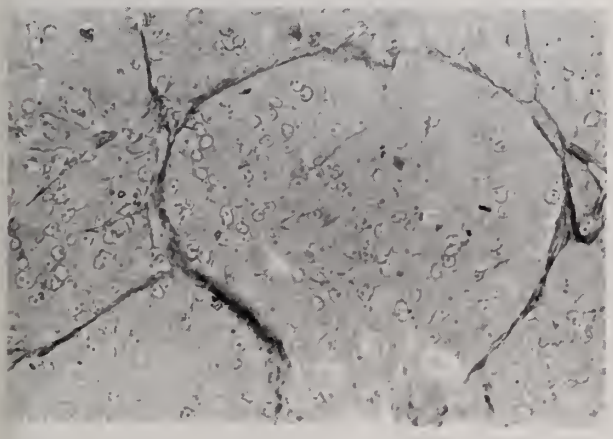
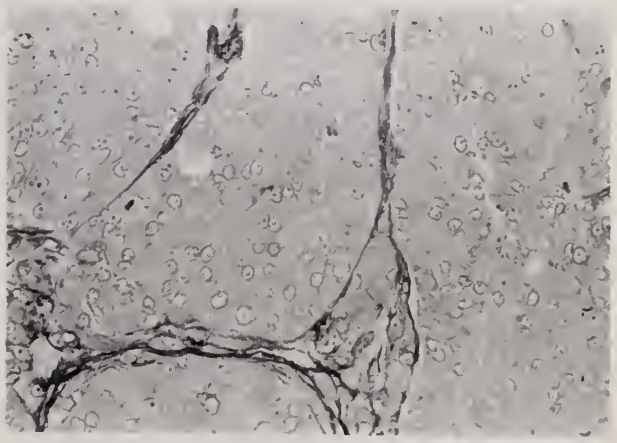


Fig. 4: *Horizontal section of normal pituitary (Anilin blue and eosin B x 48). The pars intermedia has the form of a V, it covers the pars nervosa and is separated from the anterior lobe by a cleft.*



Fig. 5: *Section of pituitary with intermediate lobe tumor of Fig. 2. (Anilin blue and eosin B x 48). The tumor (above) is separated from the anterior lobe below by remnants of the cleft. The anterior lobe is compressed at the periphery of the tumor.*





Figs. 6 and 7: *Two sections of the intermediate lobe tumor in figure 5 at higher power x 350. The cells have a tendency to form follicles or acini. Many cells are in mitosis.*

Six of the 62 experimental mice, or 9.67 percent, developed lymphosarcoma; one had a lung tumor and many females had pyometria. Of the 65 controls only 3, or 4.61 percent, developed lymphosarcoma, two had lung tumor, and one a hepatoma.

Discussion

From the results it appears that the changes in the pituitary of the mice injected with Delestrogen and those maintained Rockland rat diet supplemented with egg yolk are to some extent similar. In both cases the acidophile cells in the adenopituitary decrease and the tumors of this gland originate some from the anterior lobe and some from the intermediate lobe. The only difference in this case is in the degree of the decrease in the acidophile cells and in the number of pituitary tumors. The decrease in the acidophile cells and the incidence of pituitary tumors was considerably greater in the mice receiving Delestrogen than in those on the diet supplemented with egg yolk.

The most striking difference between the effect of prolonged administration of Delestrogen and a diet supplemented with egg yolk is in the reproductivity of the mice and in their incidence of tumors (others than those in the pituitary). The mice receiving Delestrogen from the age of 5 to 10 remained sterile,



Fig. 8: *Section of the same pituitary as in figure 3, x 48, showing four tumorous nodules. The tumor is multifocal.*

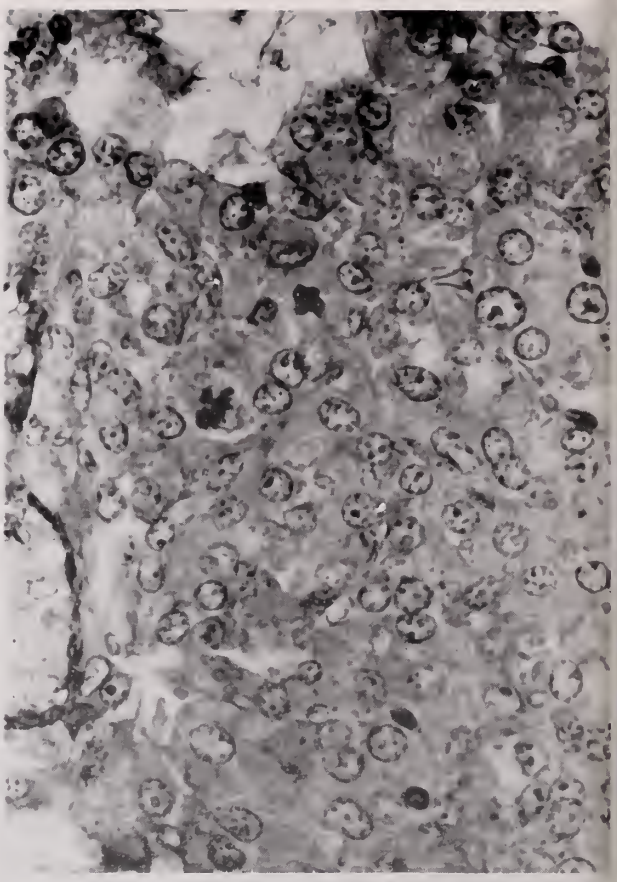


Fig. 9: *Higher magnification of a tumorous nodule of figure 8, x 700. The cells are agranular or contain pale granules and many of them are in mitosis.*

while those on the diet supplemented with egg yolk reproduced. The incidence of lymphosareoma among the former was only 9.67 percent, that of lung tumors 1.6 percent and none of the females developed mammary cancer. While the mice of the same strain maintained on a diet supplemented with egg yolk had an incidence of lymphosareoma of 36.5 percent, that of lung tumors of 39.6 percent and of the breeding females 9.6 percent developed mammary cancer. The most important differences are probably in the incidence of lymphosarcoma and lung tumors, since the complete absence of mammary cancer among the mice treated with Delestrogen may be attributed to the fact that they remained sterile. On the basis of the above the conclusion can be drawn that the effect of egg yolk upon carcinogenesis and the pituitary in mice is not due to the presence of estrogen. Another conclusion that can be drawn is that in mice treated with estrogen the acidophile content of the adenohypophysis does not completely disappear as previously reported, and that the tumors arising in the pituitary are not all chromophobe adenomas. Some are of the intermediate lobe. The decrease in the acidophile cells in the adenopituitary may be the first step toward formation of chromophobe adenomas. The problem is still being studied.

Summary

Mice of the C-57 B1. strain were injected subcutaneously with 10 gammas of Delestrogen once every two weeks, beginning at the age of five to ten days. The purpose of these experiments was to find out whether the carcinogenicity of egg lipids is due to some estrogen in egg. It was found that unlike mice maintained on a diet supplemented with egg yolk or egg lipids those receiving Delestrogen remained sterile and had a relatively low incidence

of lymphosarcoma, no mammary cancer, and only one out of 62 experimental mice developed a lung tumor.

In the adenopituitary of the mice treated with Delestrogen, the acidophile cells decreased from 56.65 percent to 39.79 percent at the age of six weeks and to 30.62 percent at the age of 14 to 54 weeks. Of 62 experimental mice 19 developed pituitary tumors at an average age of 573 days. Of these tumors nine were chromophobe adenomas of the anterior lobe, 2 acidophile and four basophile tumors of the intermediate lobe, while the origin of the remaining four tumors could not be determined.

The changes in the pituitary of the mice treated with estrogen are similar to those caused by a diet supplemented with egg yolk, except that they are more pronounced. The fact that, however, it does not cause sterility and that it induces a high incidence of various kinds of neoplasm indicates that the effect of egg lipids is not due to estrogen.

Resumen

Ratones negros C-57 fueron injectados con 10 microgramos de Delestrógeno cada dos semanas, comenzando a la edad de 5 a diez días. El propósito de este experimento fue averiguar si el efecto carcinogénico del huevo se debe a estrógeno. Se encontró que en distinción a los ratones mantenidos en una dieta suplementada con yemas de huevo o lípidos del huevo aquellos que recibieron Delestrógeno permanecieron estériles y tuvieron una relativamente baja incidencia de limfosarcoma, ningún cáncer de mama, y solo uno de sesenta y dos ratones experimentales desarrolló un tumor de pulmón.

En la hipófisis anterior de los ratones tratados con Delestrógeno, el contenido de células acidófilas bajó de 56.65 porciento a 39.79 porciento a la edad de seis semanas y a 30.62 porciento a la edad de 14 a 54 semanas. Entre el grupo experimental de 62 ratones, 10 desarrollaron tumores de la pituitaria a una edad promedio de 573 días. Nueve de estos tumores eran adenomas cromofóbicos del lóbulo anterior de la pituitaria, dos tumores acidófilos y cuatro tumores basófilos del lóbulo intermedio, mientras que fue imposible determinar el origen de los últimos cuatro tumores.

Los cambios en la pituitaria de ratones tratados con Delestrógeno son parecidos pero más marcados que lso cambios en la pituitaria de ratones cuya dieta fue suplementada con yemas de huevo. Los ratones en las dietas no son estériles y desarrollan una alta incidencia de tumores de pulmón y limfosarcomas.

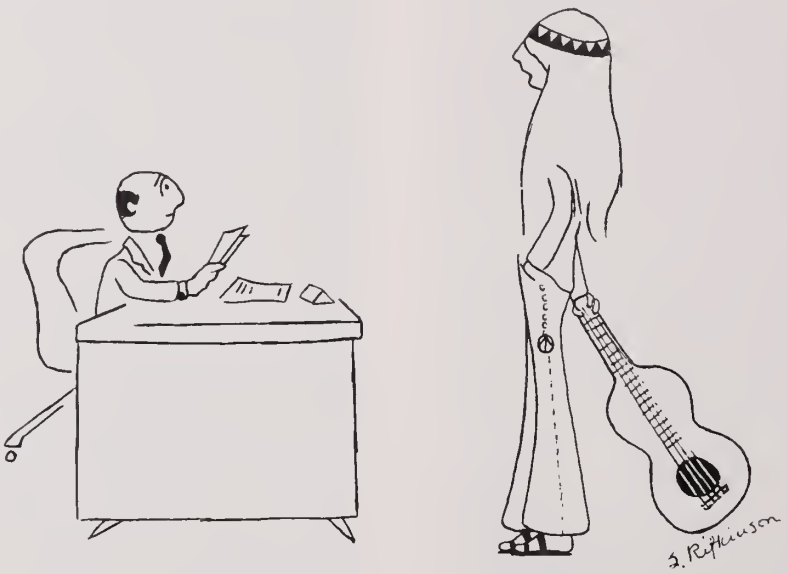
References

1. *Szepsenwol, J.:* Carcinogenic effect of egg white, egg yolk and lipids in mice, Proc. Soc. Exp. Biol. & Med. 112: 1073, 1963.
2. *Szepsenwol, J.:* Carcinogenic effect of ether extract of whole egg, alcohol extract of egg yolk and powdered egg free of the ether extractable part in mice, Proc. Soc. Exp. Biol. & Med. 116: 1136, 1964.
3. *Szepsenwol, J., Roman, A., and Santiago, J.:* Changes in the pituitary of mice on diets supplemented with egg yolk, with extracts of egg or with cholesterol, Proc. Soc. Exp. Biol. & Med. 122: 1284, 1966.
4. *Szepsenwol, J.:* Carcinogenic effect of egg yolk in mice of the C-57 black strain, Proc. Soc. Exp. Biol. & Med. 122: 981, 1966.
5. *Lacassagne, A.:* Hormonal pathogenesis of adenocarcinoma of the breast, Am. J. Cancer 27: 217, 1936.
6. *Cramer, W., and Horning, E. S.:* Experimental production by Estrin of pituitary tumors with hypopituitarism and of mammary cancer, Lancet, 230: 247, 1936.
7. *Lacassagne, A.:* Sarcomes lymphoides apparus chez des souris longuement traitées par des hormones estrogenes, Compt. Rend. Soc. Biol. 126: 193, 1937.
8. *Gardner, W.:* Lymphoid tumors in estrogen treated mice, Cancer Research, 2: 725, 1942.
9. *Gardner, W., Kirschbaum, A. and Strong, L.:* Lymphoid tumors in mice receiving estrogens, Arch. Path. 29: 1, 1940.
10. *Gardner, W., and Strong, L.:* Strain limited development of tumors of the pituitary gland in mice receiving estrogens; Yale J. Biol.& Med. 12: 543, 1940.
11. *Mazer, C., Israel, S., and Alpers, B.:* The time element in the pituitary-ovarian response to large doses of estrogenic hormone, Endocrinology 20: 753, 1936.
12. *Selye, H., Collip, J., and Thomson, D.:* Effect of estrogen on ovaries and adrenals, Proc. Soc. Exp. Biol. & Med. 32: 1377, 1935.
13. *Wolfe, J.:* Reaction of ovaries of mature female rate to injection of Estrin. Proc. Soc. Exp. Biol. & Med. 32: 757, 1935.
14. *Zondek, B.:* Tumors of the pituitary induced with follicular hormone; Lancet, 230: 776, 1936.
15. *McEuen, C., Selye, H., and Collip, J.:* Some effect of prolonged administration of Estrin in rats: Lancet, 230: 775, 1936.
16. *Wolfe, J., and Wright, A.:* Histological effects induced in the anterior pituitary of rats by prolonged injection of Estrin with particular reference to the production of pituitary adenomata, Endocrinology, 23: 200, 1938.
17. *Vázquez-López, E.:* The reaction of the pituitary gland and related hypothalamic centers in the hamster to prolonged administration of estrogens, J. Path. & Bact., 56: 1, 1944.
18. *Koneff, A., Simpson, M., and Evans, H.:* Chronic administration of diethylstilbesterol on the pituitary and other

endocrine organs of hamsters, Anat. Record 94: 169, 1946.

19. *Glenner, G., and Lillie, R.:* A rhodocyan technic for staining anterior pituitary, Stain Technology 32: 187, 1957.

20. *Chalkley, H.:* Method for quantitative morphologique analysis of tissues, J. Nat. Cancer Institute 4: 47, 1943.



I want to be a surgeon.

BLOOD ALCOHOL LEVELS AND FATAL TRAFFIC ACCIDENTS

Sidney Kaye, PhD

Motor vehicle deaths are the largest cause of accidental death in Puerto Rico. It is now clear that this is one of our more serious public health problems.

In Puerto Rico in 1968 (1) with an approximate population of 2,739,000; 261, 419 licensed drivers; 470,000 licensed motor vehicles, with a rate of 5.8 persons per vehicle; 3,280 miles of highway; and about 2.5 million potential pedestrians, there were 51,493 vehicle crashes, resulting in 23,335 personal injuries and *545 deaths.*

Whereas the total deaths from all causes have become stabilized at about 17,000 per year, (15,841 in 1960 to 15,721 in 1968), the deaths on our highways have been steadily increasing at an alarming rate from 346 in 1960 to 545 in 1968 (Table I).

This all time record of 545 traffic fatalities last year in Puerto Rico will most likely be surpassed this year according to present trends and reasonable predictions. This is of great concern to us. Does it follow a pattern? What can be done to stop this trend? To what extent is alcohol a factor? There is no question but, that there is a direct relationship between drinking and its effects on driving. Blood-Alcohol levels above 0.15 percent w/v is prima facie evidence of "driving while under the influence" of alcohol in Puerto Rico. Many contend that this level should be lowered to 0.10 percent w/v (2).

In spite of all efforts, the drinking driver is on the increase. About one half of our adult population uses the highways at least occasionally after drinking (3). Drinking to *any extent* reduces the ability of *any driver.* For this reason, the social drinker is a greater menace than is generally accepted. His judgment is impaired with fairly low alcohol levels, and he by far outnumbers the obviously drunk driver. Impairment of judgment occurs before the more obvious symptoms of intoxication are apparent; one does not have to be obviously drunk to be an unsafe driver. "Under the Influence" means that due to drinking alcohol, a person has lost to some degree *his normal judgment,* reflexes, vision, concentration, and his ability to respond to an *emergency situation (*4, 5).

This study was undertaken in order to get a better understanding of the extent of the influence of alcohol on highway deaths in Puerto Rico.

Of the 545 total traffic deaths, 304 cases were studied at the Institute of Legal Medicine, which is within reasonable distance to about one third of the total population of our Island. Blood alcohol levels were determined in 204 of these cases.

These deaths were also distributed as to age, sex, occupation, day of week, time of day and whether they were pedestrians, passengers, or drivers. Much of this data has been gathered in the United States for many years, and it would be of interest to compare. In our preliminary study, there appear to be

TABLE I: DEATHS IN PUERTO RICO

Year	Total Deaths	Highway Deaths
1960	15,841	346
1961	16,361	317
1962	16,575	367
1963	17,386	425
1964	18,471	451
1965	17,719	429
1966	17,509	407
1967	16,585	489
1968	15,721	545

From the Institute of Legal Medicine, School of Medicine, University of Puerto Rico.

Conference given at the Third International Association for Accident and Traffic Medicine May 29,-June 4, 1969 in New York City.

This investigation was supported by the Puerto Rico Highway Safety Commission; Safety Project AL-68-1-001, and by a grant from the U. S. Department of Transportation, Federal Highway Administration.

TABLE II: RELATIVE DISTRIBUTION OF ALL CASES STUDIED IN THE INSTITUTE OF LEGAL MEDICINE BY CATEGORIES AND SEX – 1968

Categories	Total		Sexes			
			Males		*Females*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Total	304	100.0	254	100.0	50	100.0
Pedestrians	209	68.7	181	71.3	28	56.0
Passengers	40	13.2	24	9.4	16	32.0
Drivers	40	13.2	35	13.8	5	10.0
Motoreyclists	12	3.9	11	4.3	1	2.0
Cyclists	3	1.0	3	1.2		

some agreements and some differences already evident. It will remain to be seen by future studies if these are consistent.

The motor vehicle deaths in the United States have been found (6) to be more frequent in males than females (about 3:1). In the 20-24 year age group, male deaths were four and a half times as high as the female death rates. There were about 8,700 pedestrians (16 percent) out of a total of 53,000 highway deaths; and male ages 65 and over, accounted for about one fifth of these deaths.

So far, our studies in Puerto Rico show that during the year 1968 there were 545 traffic accident deaths. This is equivalent to an 11.2 percent increase over the previous year when 489 deaths were reported. The rate for traffic deaths for 1968 was 20.2 deaths per 100,000 population. One person died in a traffic accident every 16 hours. In the 51,493 total traffic accidents reported, there were 23,335 personal injuries. For every 2.2 accidents, there was one personal injury, and there was a traffic accident every 10 minutes (7).

The death index for traffic accidents has increased from 100.0 (base line) in 1960 to 158.0 in 1968. However, the death index for all causes was reduced from 100.0 base line in 1960 to 99.2 in 1968. This shows a definite leveling off of deaths due to all causes during the last eight years, while the traffic deaths have increased *alarmingly* during the same period.

The areas reporting the most frequent traffic deaths were: San Juan (94), followed by Bayamón (24), Arecibo, Ponce and Vega Baja with 23 each, Manatí (18), Toa Baja (15), Guaynabo and Carolina 14 each. Aibonito, Maricao, Rincón, Vieques and Villalba had no traffic deaths. Highway No. 2 (our northern route) was the road where by far the largest number of highway deaths occurred in 1968.

Of the 304 cases studied at the Institute of Legal Medicine, males outnumber females 5:1 (254 M : 50 F) (Tables II and III).

Pedestrians accounted for 209 cases of which 181 were males and 28 females (6:1) and constituted 68.7 percent of all the traffic deaths studied (Table II). Far more pedestrians (209) were killed here than drivers (40) ratio (5:1); and there was no apparent pedestrian age grouping difference between ages 1-70. There were about 25 in each 10 year group, mostly males. There were few above 70 years old, only 15, and only 6 above 80 (all males). The occupations most frequently found among the pedestrians in order were: laborers, merchants, and students.

Drivers accounted for 40 cases or 13.2 percent of the total; of these 35 were males, 5 females (7:1). Forty seven and five tenths percent of the fatal drivers were between ages 21 and 30 years old. Chauffeurs represented the most frequent occupation, followed by mechanics and policemen.

Blood alcohol determination * were performed only in 206 cases (182 males and 24 females) (7:1), because 98 of the 304 cases studied were hospitalized prior to death and no alcohol level was determined due to the time interval between accident and death (Table IV). Of the 206 cases studied for alcohol content, 96 were found positive (46.6 percent). These were distributed into 92 males and 4 females. In 56 of the positive cases (58.3 percent), the alcohol content was 0.15

* The above blood alcohol levels were all performed directly on blood that was preserved with sodium fluoride (100 mg/10 ml) (8). The Muehlberger procedure was used throughout (9). Urine was not used; it is unreliable (5, 10, 11, 12). Values of 0.02 percent or less were reported negative, and all possible common interfering substances were ruled out (13).

TABLE III: DISTRIBUTION BY AGE GROUPS AND SEXES OF DRIVERS AND PEDESTRIANS KILLED IN TRAFFIC ACCIDENTS AND STUDIED IN THE INSTITUTE OF LEGAL MEDICINE 1 9 6 8

Age Groups	Total			Categories					
				Drivers			*Pedestrians*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
Total	249	216	33	40	35	5	209	181	28
0 - 10	23	20	3	-	-	-	23	20	3
11 - 20	34	30	4	6	6	-	28	24	4
21 - 30	46	40	6	19	16	3	27	24	3
31 - 40	26	21	5	6	5	1	20	16	4
41 - 50	32	27	5	4	4	-	28	23	5
51 - 60	36	32	4	4	3	1	32	29	3
61 - 70	31	28	3	1	1	-	30	27	3
71 - 80	15	12	3	-	-	-	15	12	3
81 or more	6	6	-	-	-	-	6	6	-

TABLE IV: TRAFFIC DEATHS STUDIED IN THE INSTITUTE OF LEGAL MEDICINE BY CONTENT OF ALCOHOL IN BLOOD AND DAY OF THE WEEK 1 9 6 8

Content of Alcohol in Blood	Total	Days of the Week						
		Monday	*Tuesday*	*Wednesday*	*Thursday*	*Friday*	*Saturday*	*Sunday*
Traffic Deaths Studied - Both Sexes	304	33	22	32	34	45	78	60
Alcohol Samples - Sub-Total	206	18	14	20	20	27	57	50
Positive of Alcohol - S. T.	96	8	4	5	6	17	38	18
0.15 or more	56	5	3	3	5	9	19	12
0.10 - 0.14	25	-	-	2	-	7	14	2
0.09 or less	15	3	1	-	1	1	5	4
Negative of Alcohol - S. T.	110	10	10	15	14	10	19	32
No Alcohol Samples * - S. T.	98	15	8	12	14	18	21	10
Males - Sub-Total	254	25	18	26	29	37	68	51
Alcohol Samples - Sub-Total	182	15	14	17	19	22	51	44
Positive of Alcohol	92	8	4	5	6	16	37	16
0.15 or more	53	5	3	3	5	8	19	10
0.10 - 0.14	24			2		7	13	2
0.09 or less	15	3	1		1	1	5	4
Negative of Alcohol	90	7	10	12	13	6	14	28
No Alcohol Samples * - S. T.	72	10	4	9	10	15	17	7
Females - Sub-Total	50	8	4	6	5	8	10	9
Alcohol Samples - Sub-Total	24	3		3	1	5	6	6
Positive of Alcohol	4					1	1	2
0.15 or more	3					1		2
0.10 - 0.14	1						1	
Negative of Alcohol - S. T.	20	3		3	1	4	5	4
No Alcohol Samples * - S. T.	26	5	4	3	4	3	4	3

** - Death in hospital.*

TABLE V: RELATIVE DISTRIBUTIONS OF ALL TRAFFIC DEATHS STUDIED IN THE INSTITUTE OF LEGAL MEDICINE, BY CONTENT OF ALCOHOL IN BLOOD AND SEX 1968

Content of Alcohol in Blood	Both Sexes		Sex: Males		Females	
	Number	Percent	Number	Percent	Number	Percent
Traffic Deaths Studied	304	100.0	254	83.9	50	16.1
Alcohol Samples - Sub-Total	206	100.0	182	88.3	24	11.7
Positive of Alcohol	96	100.0	92	95.8	4	4.2
0.15 or more	56	100.0	53	94.6	3	3.4
0.10 - 0.14	25	100.0	24	96.0	1	4.0
0.09 or less	15	100.0	15	100.0		
Negative of Alcohol	110	100.0	90	81.8	20	18.2
No Alcohol Samples * - Sub-Total	98	100.0	72	74.5	26	25.5

** - Deaths in Hospital.*

TABLE VI: RELATIVE DISTRIBUTION OF ALL TRAFFIC DEATHS STUDIED IN THE INSTITUTE OF LEGAL MEDICINE, BY CONTENTS OF ALCOHOL IN BLOOD AND CATEGORIES – 1968

Content of Alcohol in Blood	Total		Categories: Pedestrians		Passengers		Drivers		Motorcyclists		Bicyclists	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Traffic Deaths Studied	304	100.0	209	100.0	40	100.0	40	100.0	12	100.0	3	100.0
Alcohol Samples - S. T.	206	67.8	135	64.6	29	72.5	32	80.0	8	66.7	2	66.7
Positive of Alcohol	96	31.6	60	28.7	10	25.0	25	62.5	1	8.3		
0.15 or more	56	18.4	36	17.2	6	15.0	14	35.5				
0.10 - 0.14	25	8.2	14	6.7	3	7.5	8	20.0				
0.09 or less	15	4.9	10	4.8	1	2.5	3	7.5	1	8.3		
Negative of Alcohol	110	36.2	75	35.9	19	47.5	7	17.5	7	58.3	2	66.7
No Alcohol Samples * -S.T.	98	32.2	74	35.4	11	27.5	8	20.0	4	33.3	1	33.3

** - Deaths in Hospital.*

percent or more. Twenty five (25) cases had between 0.10 percent and 0.14 percent alcohol; and 15 cases had 0.09 percent or less alcohol.

Of the 135 pedestrians whose blood alcohol was determined, 60 (44.4 percent) were positive for alcohol (Table VI). Thirty six had 0.15 percent or more; 14 had between 0.10 percent and 0.14 percent; and 10 cases had 0.09 percent or less alcohol.

Of the 29 passengers in traffic deaths, 10 cases (33 percent) were positive for alcohol.

Of the 32 drivers tested, 25 cases (*78 percent)* were positive for alcohol; 14 of the 25 cases had 0.15 percent or more; eight (8) cases were between 0.10 percent and 0.14 percent; and 3 had 0.09 percent or less alcohol. Seven (7) cases were negative.

Seventy six percent of the 96 deaths where alcohol was found to be present, occurred during the evenings of the week-end (Table IV). Saturday nite was the time when most (40 percent) of these (alcohol positive) traffic deaths occurred.

We found 3 cases that were positive for drugs, (salicylates, phenothiazines derivative, and morphine);

and 3 cases positive for carbon monoxide. Carbon monoxide is a depressant compound that also could affect driving performance (14). Depressant drugs by themselves, or more so in combination with alcohol (10, 15), are known to diminish the functional abilities of the individual. · These will be further studied in Puerto Rico.

Post-mortem examination were performed on the 304 cases studied (16). Liver damage (cirrhosis or fatty degeneration) was an infrequent pathological finding. Of the 304 traffic deaths studied, only 6 cases showed liver damage; two (2) out of the 96 positive for alcohol and 4 out of 98 where no alcohol analysis were done (died in hospital). In the 110 that were negative for alcohol no liver damage was seen.

It is of interest to note that out of a total of 1932 autopsies performed in 1968 at the Institute of Legal Medicine (16) only 111 cases of cirrhosis or fatty degeneration of the liver (5.7 percent) were found and only in 2 percent of the positive alcohol traffic deaths were these findings present.

There appears to be quite a discrepancy between these findings and those reported by McFarland, Ryan, and Dingman (17) who state that 66 percent of all who died in traffic accidents and had a blood-alcohol of 0.15 percent or above also had cirrhosis or fatty degeneration of the liver. Because of their findings, the authors conclude that alcoholics rather than social drinkers account for more than half of the alcohol-related accidents. In Puerto Rico this does not seem to be the case. Also here in Puerto Rico acute alcoholism is an infrequent cause of death (18), while in some of the States it is one of the principal causes of death due to accidental overindulgence (5).

Are the drinking habits and culture of Puerto Ricans different from those on the mainland? We will continue our observations and see if our data is consistent.

Summary

Traffic deaths in Puerto Rico have gone up from 346 in 1960 to 545 in 1968, whereas the total deaths from all causes have leveled off at about 17,000 per year during the same period of time.

In this study, 304 traffic fatalities were investigated and alcohol determinations done in 206 of these; distributed by sex into 182 males and 24 females.

Most of the traffic deaths studied occurred in Highway No. 2 (northern route).

Week-end evenings, and specially Saturday nite were the time of greatest height percentages of traffic deaths. Male deaths outnumbered female.

Blood alcohol was positive in 96 cases or 47 percent of the total cases studied. Males by far were more frequent than females - 92 males and 4 females. Pedestrians outnumbered all other categories and accounted for 69 percent of the total; and drivers were only 13 percent.

Forty four percent of the dead pedestrians and 78 percent of the drivers tested for alcohol were found positive.

Only among the drivers was a significant age distributive found where 48 percent of them were between 21-30 years old. Pedestrian deaths were more or less equally divided among the different age group 1-70 years.

Drugs were found in 3 cases, and carbon monoxide in another 3.

Cirrhosis of the liver was a very infrequent finding at autopsy.

Resumen

Las muertes debidas a accidentes de tránsito en Puerto Rico han aumentado de 346 en 1960 a 545 en 1968, mientras el número total de muertes para todas las causas se ha nivelado a aproximadamente a 17,000 por año durante ese mismo período.

En este estudio, 304 casos de muertes en accidentes de tránsito fueron investigados en el Instituto de Medicina Legal y a 206 de éstos se les hizo un análisis para la determinación de alcohol. La distribución por sexo de estos 206 casos fue de 182 varones y 24 mujeres.

La mayoría de estas muertes estudiadas ocurrieron en la carretera estatal número 2. Un porciento alto de las muertes por accidentes de tránsito ocurrieron durante los fines de semana, en las horas nocturnas y especialmente los sábados por la noche.

En 96 casos ó 47 porciento de los casos estudiados fueron positivos para alcohol en la sangre. Las muertes en varones fueron más frecuentes (92 varones, 24 hembras). Los peatones envueltos en accidentes fatales, los cuales son 69 porciento, sobrepasaron a las otras categorías; los conductores solamente 13 porciento.

Cuarenta y cuatro porciento de los exámenes en peatones y 78 porciento en conductores fueron positivos para alcohol. Solamente entre los conductores

había una distribución por edad significante en la cual se encontró que un 48 porciento de los conductores estaban entre las edades de 21-30 años. Los peatones estaban divididos más o menos igualmente entre las edades de 1-70 años.

Drogas fueron encontradas en tres casos y monóxido de carbono en otros tres.

La cirrosis del hígado es un hallazgo muy poco frecuente en las autopsias.

Acknowledgment

Thanks and acknowledgments are due to Dr. Rafael Criado, Dr. Néstor A. Loynaz and Dr. Marino Sorvill, Forensic Pathologist at the Institute of Legal Medicine, for their wholehearted cooperation; and to Statistician Roberto Montañez for the statistical evaluation, and also to Chemists Jaime Irizarry and Angel L. Canales for the alcohol determinations.

References

1. Information supplied by the Department of Public Works, Commonwealth of Puerto Rico (Eng. Alfredo Méndez and Eng. Alberto Prieto).
2. National Safety Council, New York, Virginia and others.
3. Department of Transportation News, Office of the Secretary, Washington, D. C., News Item, August 6, 1968.
4. *Kaye, S.:* Blood-alcohol levels and the driver, Bol. Asoc. Méd. P. Rico 56: 115, 1964.
5. *Kaye, S.:* Alcohol and its effects on man, Medical Times, 88: 1142, 1960.
6. U. S. Public Health Service Injury Control Program - August 1968.
7. Information received from the Department of Police, Commonwealth of Puerto Rico.
8. *Kaye, S., and Dammin, G.;* Stability of blood-alcohol: A suitable preservative for the determination of blood-alcohol. J. Mil., Surg., 96: 93, 1945.
9. *Muehlberger, C. W.:* Determination of Alcohol Clinical Lab. Diag., Levinson & McFate, 6th Ed., 1961, page 1197.
10. *Kaye, S.:* Thesis, Observations on the Determination of Ethyl Alcohol, Medical College of Virginia, 1955.
11. *Kaye, S., and Cardona, E. L.:* Some Questions in the Evaluation of the Blood Alcohol Levels in Man. Proc. 4th., Int. Ntl. Conf. on Alcohol and Traffic. Indiana Univ. Press, Dec., 1965.
12. *Kaye, S., and Cardona, E. L.:* Errors of converting a urine-alcohol determination to a blood-alcohol level. Amer. J. Clin. Path., In Press (1969).
13. *Kaye, S., and Haag, H. B.:* Determination of ethyl alcohol in blood. J. Forensic Med., 1: 373, 1954.
14. *Kaye, S.:* Toxicology of carbon monoxide, Bol. Asoc. Méd. P. Rico 57: 626, 1965.
15. *Kaye, S., and Haag, H. B.:* Study of death due to the combined action of alcohol and paraldehyde in man. J. Toxicol. and Appl. Pharmacol., 6: 316, 1964.
16. Pathology by Dr. Rafael Criado, Forensic Pathologist, Dr. Nestor A. Loynaz, Forensic Pathologist, and Dr. Marino Sorvill, Forensic Pathologist, all of the Institute of Legal Medicine, School of Medicine, U. P. R.
17. *McFarland, R. A., Ryan, G. A. and Dingman, R.:* Etiology of motor vehicle accidents. New Eng. J. Med. 278: 1383, 1968.
18. *Kaye, S.:* Toxicology of parathion. Bol. Asoc. Méd. P. Rico 59: 362, 1967.

PREGNANCY AFTER CARDIAC SURGERY

Francisco X. Veray, MD
Juan J. Hernández Cibes, MD, FACOG
Francisco Raffucci, MD, FACS
Iván A. Pelegrina, MD, FACOG

In 1874, Michel Peter gave a series of pessimistic conclusions regarding the female with heart disease in the childbearing age (1). It was his view that "a woman with heart disease should not get married, should not get pregnant and, if safely delivered, she must not nurse her child". These were the views of obstetricians and cardiologists for many years to come. It has been long recognized that the pregnant cardiac patient presents special problems that, in order to carry her through pregnancy with the greatest safety, requires the combined efforts of both groups of specialists.

Since the initial reports of Logan and Turner (2) and Brock (3), in England and of Cooley and Chapman (4), in the United States, increasing interest has been fostered, not only relative to the application of cardiac surgery during pregnancy, but to the changing perspective concerning the feasibility of pregnancy in cardiac patients in whom surgery was performed (5).

It is our intention, in undertaking this study, to review the cases of pregnant women seen at the Department of Obstetrics and Gynecology of the University Hospital from July 1966 to June 1968, who had undergone cardiac surgery so as to observe their behavior during pregnancy and to study the effects of cardiac surgery in relation to reproduction.

Materials and Methods

From July 1966 to June 1968, 10,103 women were delivered of viable infants in the Department of Obstetrics and Gynecology of the University Hospital. Sixty four of these women, a ratio of 6 per 1000 pregnant females, were diagnosed of organic heart disease. Forty, or 62.5 percent of this subgroup of women had rheumatic heart disease and 24, or 37.5 percent congenital heart disease. Ten women, or 16 percent, were submitted to cardiac surgery. All of them were operated while in the non-pregnant state. The types of operations performed were as follows: In rheumatic heart disease patients (Table I) 3 mitral commissurotomies (closed-heart type) were done for mitral stenosis secondary to rheumatic fever; in congenital heart disease patients, 2 had repairs of an atrial septal defect, (ostium secundum type), 1 had repair of a ventricular septal defect with correction of a tricuspid aneurysm, 1 had a pulmonary valvulotomy for pulmonary valve stenosis (with a gradient of 80 mm Hg across the valve), 1 had ligation of a patent ductus arteriosus with closure of a ventricular septal defect and 1 had Taussig-Blalock (left) anastomosis for a tetralogy of Fallot.

Five women had not been pregnant prior to cardiac surgery, while the other five had 14 pregnancies. Following surgery, the ten patients had a total of fifteen pregnancies.

One of the five multigravidas had had 11 spontaneous abortions before she was operated upon. This woman, with a diagnosis of tetralogy of Fallot, had an oxygen saturation of 52 percent before surgery. A second woman with a repaired patent ductus arteriosus had 2 spontaneous abortions after surgery, at 12 and 16 weeks of gestation, considered not to be related to her cardiac status. The age of these patients ranged from 16 to 43 years. Before surgery, all cases were classified as Class III (using New York Heart Association classification), and had associated findings with their lesions, radiologically as well as electrocardiographically. Two cases had gone into congestive heart failure, during the overloading period (28th-32nd week), of pregnancy. All cases of congenital heart disease underwent cardiac catheterization and angiographic studies for further corroboration of their diagnosis before surgical correction. The mitral stenosis cases were not submitted to catheterization since they were pure lesions clinically. They were thus submitted to surgery after complete clinical evaluation. The pump oxygenator was used in 4 of these patients (VSD, VSD + PDA, in the ASD's).

All these 10 patients, when seen in our clinic for the first time after cardiac surgery, were examined carefully to detect the presence of any deterioration of their cardiac status. After evaluation an opinion was expressed concerning their ability to withstand successfully the additional burden on their hearts, produced by pregnancy (6). The patients were then followed jointly by the cardiologist and obstetrician for the remainder of their pregnancy.

All patients with Class I and Class II heart disease were considered to be "favorable" and were seen every two weeks

From the Departments of Obstetrics and Gynecology, Medicine, Surgery and the Maternity and Infant Care Project No. 505, University of Puerto Rico School of Medicine, San Juan, Puerto Rico.

Presented at the 18th Scientific Session of the Puerto Rico Heart Association, September 1968, San Juan, Puerto Rico.

TABLE I: TYPE OF SURGERY PERFORMED BEFORE PREGNANCY

Operation	Number
Rheumatic Heart Disease Patients	
Mitral commissurotomy for rheumatic mitral stenosis	3
Congenital Heart Disease Patients	
Repair of atrial septal defect (ostium secundum)	2
Repair of ventricular septal defect with correction of tricuspid aneurysm	1
Pulmonary valvulotomy due to pulmonary valve stenosis	1
Ligation of patent ductus arteriosus	1
Ligation of patent ductus arteriosus and closure of ventricular septal defect	1
Blalock-Taussig Anastomosis due to Tetralogy of Fallot	1

at the combined clinic of our Maternity and Infant Care Project. They were evaluated closely for any abnormal weight gain or the presence of infections or anemia. All Class I and II cardiac patients were placed on a low sodium diet and urged to obtain 10 hours of rest per day. They were allowed to go into labor spontaneously and were given antibiotics throughout labor, delivery and the puerperium. Delivery was accomplished under pudendal block with low forceps, an episiotomy was done when needed, and an effort was made to facilitate the second stage of labor as much as possible, to reduce stress produced by bearing down efforts.

In our institution, this type of patient ordinarily remains on bed rest after delivery for 3-5 days and may be discharged on the seventh to 10th day postpartum.

Class III cardiac patients go into heart failure very frequently while undergoing the predictable burdens of pregnancy and thus special care is exercised in the handling of each case. If the patient concerned is in a state denoting extreme intolerance to ordinary activity, she is hospitalized with complete bed rest for the remainder of the pregnancy. A history of previous failure or the presence of auricular fibrillation are indications for complete bed rest in the hospital until term.

Certain Class III patients may be treated as out-patients if they adhere strictly to the plan of management presented for Class I and II, but these are hospitalized at the time of their overloading period (28th-32nd week).

The "unfavorable" cardiac patients are allowed to go into labor spontaneously and are delivered by low forceps under pudendal block anesthesia. These patients are kept at bed rest during the puerperium for 5 to 10 days and are usually discharged 2 weeks post-delivery.

Results

After surgery all patients improved functionally. There were 8 cases classified as Class I, and 2 cases classified as Class II. These two cases were the pulmonic valve stenosis case, who had a pulmonary valvulotomy, and the status post Blalock-Taussig anastomosis in the tetralogy of Fallot.

Electrocardiographic Changes:

There was no apparent change in 4 cases. These cases were the two patients with atrial septal repairs, the pulmonary valvulotomy patient and the Taussig-Blalock anastomosis in the tetralogy of Fallot patient (complete right bundle branch block and right ventricular hypertrophy and strain). There was one case where electrocardiographic change was evident; this was in the case of repaired ventricular septal defect with tricuspid aneurysm, that changed from a biventricular enlargement before surgery to complete right bundle branch block after surgery. There was electrocardiographic improvement in 5 cases. This improvement occurred in all mitral commissurotomy patients and the patent ductus arteriosus patients.

Radiological Improvement:

Radiological improvement occurred in 9 cases. The case of Blalock-Taussig anastomosis improved radiologically by enlarging her left ventricle and improving her pulmonary ischemia. No change occurred in the pulmonary valvulotomy case.

Other Results:

Oxygen saturation and hematocrit improved after surgery (saturation range 87-88 percent during the 2 pregnancies, and hematocrit 45-48 percent) in the case of Blalock-Taussig anastomosis.

Only one case developed congestive heart failure.

TABLE II: MITRAL COMMISSUROTOMY PRIOR TO AND DURING PREGNANCY

Author	Prior to Pregnancy			During Pregnancy		
	Number of Cases	*Maternal Deaths*	*Fetal Deaths*	*Number of Cases*	*Maternal Deaths*	*Fetal Deaths*
Kaufman (1958) (10)	96	0	1	93	3	5
Mendelson (1959) (11)	12	0	2	21	0	2
Benavides (1959) (12)	28	0	0	12	0	0
Elis (1967) (13)	20	0	1 (Stillbirth)	18	0	0

This developed in the Blalock-Taussig anastomosis case, and was precipitated by a pneumonic process which developed during her first pregnancy, after surgery. It was treated successfully with medical therapy. Her second pregnancy after surgery terminated without complications; she was hospitalized for observation from her 28th to her 32nd week of gestation.

The patients with VSD repair and the Blalock-Taussig anastomosis were delivered of low birth weight newborns. All other cases delivered vaginally normal full-term babies.

Other complications present in these cases were properly controlled and did not interfere with the patient's cardiac status. These conditions, occurring once in our series, were: pre-eclampsia, mild; urinary tract infection; ferropenic anemia; gestational diabetes (Class A); epilepsy residual to a brain abscess; Rh negative non-sensitized, and a positive serology in a patient who had received adequate treatment in the past.

Discussion

The cases presented are illustrative of our experience, which is consistent with that of others, in showing the possible benefits of cardiac surgery when performed in young women during the childbearing years (3).

Our data is not so extensive as to permit generalizations or conclusions concerning still controversial issues, but in the light of our experience in dealing with the cardiac patient in pregnancy, a number of comments are permissible.

During pregnancy the incidence of heart disease is generally reported as between 1.5 and 3.0 percent, of which 80 to 90 percent is rheumatic in etiology (9). Roughly three-fourths of the rheumatic patients will have significant degrees of mitral stenosis, a lesion particularly amenable to surgical treatment, the results of which have been widely studied with reference to the outcome of pregnancy.

Other investigators reported on mitral commissurotomy prior to and during pregnancy. Kaufman (10), in 1958 reported of mitral commissurotomy in pregnancy. He presented 96 instances of mitral commissurotomy prior to pregnancy, with no subsequent maternal mortality and one fetal death; and in 96 cases of mitral commissurotomy during pregnancy he only had 3 maternal deaths (Table II). Mendelson, in 1959 (11) presented 12 instances of mitral commissurotomy prior to pregnancy, with no maternal death and two fetal deaths; of 21 instances of mitral commissurotomy during pregnancy he reported no maternal death and 2 fetal deaths. Benavides, in 1959 (12) at the Instituto Cardiológico de Méjico, had 28 cases in which mitral commissurotomy was performed prior to pregnancy with no maternal death and no fetal death. Twelve cases underwent mitral commissurotomy during pregnancy, with no maternal death and no fetal death. Elis, in England (1967) (13) reported, in 20 cases of mitral commissurotomy prior to pregnancy, no maternal death and 1 stillbirth. In 18 cases of mitral commissurotomy performed during pregnancy, no maternal or fetal deaths occurred.

Similar to other investigators (14, 15, 16, 17), our ten cases showed successful outcome of pregnancy. Our 3 cases of mitral stenosis with a mitral orifice of 5 mm or less, became asymptomatic after surgery. At no time did they exhibit signs or symptoms of pulmonary congestion or cardiac decompensation after

surgery. In the congenital heart disease patients there was 1 case of congestive heart failure successfully controlled and 2 cases of low-birth-weight babies, but in all instances the patients showed improvement after surgery.

The clinical behavior of patients with significant mitral stenosis during pregnancy is somewhat unpredictable because of the pathologic physiology developing as a result of the lesion. The physiological load of pregnancy on the cardiovascular system thus places the patient in close proximity to pulmonary edema, a fact emphasized by a number of authorities. Response to digitalization is generally unsatisfactory because of the nature of the lesion and the altered dynamics of the pulmonary circulation. Valvotomy, however, when successful, obviates the difficulties encountered by restricted flow and may markedly change the functional status and prognosis of the cardiac patient in subsequent pregnancies.

The application of mitral valvotomy to patients during pregnancy remains controversial. Mendelson (8) has shown that pregnancy does not increase the operative mortality of mitral commissurotomy and that it does not jeopardize the baby by increasing the incidence of abortion, premature labor or congenital malformations. He reported a 3 percent mortality in 385 antepartum commissurotomies but, as Watt (19) had done before him, he pointed out the importanee of careful selection of patients.

Other authors maintain that cardiac surgery during pregnancy is rarely justified but, in the experience of many, pregnancy does not appear to increase the operative risk and a more liberal attitude towards the indications for surgery is advocated. It is well known that the decision to advise operation is often difficult. The cardiac patient is difficult to evaluate during pregnancy, due to the fact that physical signs may be intensified by changes of the normally altered vascular dynamics, and because the symptomatology of normal pregnancy may be mistaken for that of pulmonary congestion. It is generally agreed, however, that careful evaluation and selection of patients for surgery is mandatory.

In our media we have employed closed valvotomy during pregnancy only when pulmonary congestion is significant and progressive and not controlled by vigorous treatment. The procedure should preferably be carried out during the mid trimester, before the peak loading of the myocardium develops, and it should be withheld until after delivery if the patient has already reached the 36th week, when the cardiovascular load is decreasing. Emergency valvotomy should be carried out at any stage of pregnancy when frank pulmonary congestion not responding to medical management develops.

The idea of valve replacement when necessary is a thought we have to keep in mind. There have been numerous reports, such as the ones by Jacobs and Cooley (20), Harthorne, *et al* (21), Johnson, *et al* (22), Otternan, *et al* (23) and Strickland, *et al* (24) where successful prosthetic valves have been implanted during pregnancy.

Valve replacements and open heart surgery as that performed in congenital heart disease patients requires the use of the pump oxygenator, procedure that, although bringing new hope to doomed pregnant cardiacs, introduces a lot of variants. These variants are: The time of extracorporeal circulation, the adequate amount of perfused blood, oxygenation and the increased blood viscosity that adds more difficulties to the already endangered fetus. Up to 1965 when the pump was used, the results have been meager (25). Brandenburg (26) recently advises that if the use of pump oxygenator can wait, better results are encountered after the organogenesis has been accomplished, that is to say, after the 20th week. Another point is also clear—that sometimes this procedure has to be performed as a life-saving measure and then the duration of pregnancy has to be disregarded. Curtailing the pump time and watching for necessary perfusion results in successful deliveries.

Therapeutic abortion is not generally advocated but may be recommended in the occasional high risk patient. It is indicated during the first trimester only as a supplementary procedure to surgery. Sterilizations are not recommended as the outlook of successful pregnancy is reasonably good after surgical treatment.

Close medical supervision and treatment will permit successful continuation and culmination of pregnancy in the majority of operated patients as indicated by a number of reports (27, 28, 29). It should be emphasized that after cardiac surgery, even if complete improvement is obtained before or during pregnancy, medical supervision is required in order to attain a successful pregnancy, due to the normal as well as unpredictably abnormal loads that may be imposed on the myocardium.

Since the advent of better diagnostic means and the advances of cardiac surgery, Gilchrist (31) observed that the number of congenital heart disease patients achieving childbearing age has increased. Cannell (32) and Vernon (33) had reported that con-

TABLE III: SUMMARY OF CLINICAL COURSE OF 10 CASES

Case	AGE		Gravity	Functional State		Operative Procedures	Abortions		Complications	Delivery
	Operation	*Pregnancy*		*Before Surgery*	*After Surgery*		*Before Surgery*	*After Surgery*		
1	17 years	27 years	Primigravida	III	I	Mitral Commissurotomy	0	0	None	Full term vaginal delivery
2	24 years	31 years	Multigravida	III	I	Mitral Commissurotomy	0	0	CHF in 1960 while pregnant	2 full-term vaginal deliveries
3	36 years	43 years	Multigravida	III	I	Mitral Commissurotomy	0	0	Positive serology well treated (1946) Class A diabetic, 1967	2 full-term vaginal deliveries
4	11 years	16 years	Primigravida	III	I	Closure of ASD	0	0	Rh neg. non sensitized Excessive weight gain Albuminuria	2 full-term vaginal deliveries
5	12 years	17 years	Primigravida	III	I	Closure of VSD Repair of tricuspid aneurysm	0	0	None	1 low birth-weight newborn
6	11 years	18 years	Primigravida	III	I	Closure of ASD	0	0	None	Full-term vaginal delivery
7	10 years	19 years	Multigravida	III	I	Ligation of PDA	0	II	GUI, Ferropenic anemia	Full-term vaginal delivery
8	15 years	19 years	Primigravida	III	I	Ligation of PDA Closure of VSD	0	0	None	Full-term vaginal delivery
9	15 years	22 years	Primigravida	III	II	Pulmonary Valvulotomy	0	0	None	2 full term vaginal deliveries
10	33 years	38 years	Multigravida	III	II	Blalock Taussig Anastomosis due to T/F	XI	0	Epilepsy residual of brain abscess. CHF in pregnancy in 1966 due to pneumonia HCT-48 percent, O_2 Sat 88 percent	1 low-birth weight newborn 1 full-term delivery

genital heart disease occurred in 0.2 to 19 percent of all pregnant patients. Our experience is limited to definite principles of treatment and generalizations regarding the role of surgery in the management of these patients.

All the 7 cases seen by us had undergone surgical corrections before pregnancy. The place of surgery during pregnancy in these cases still remains a controversial topic. Some authorities consider it to be as safe during pregnancy as in the non-pregnant state (11, 18). All agree with the fact that, if possible, surgery should be performed prior to pregnancy. Early recognition and prompt surgical intervention in younger patients may decrease the necessity for such measures in the pregnant patient (34, 35).

In the management of pregnant females with congenital heart disease, we agree with Espino-Vela (36, 37) that tolerance to the congenital malformation prior to pregnancy is a useful guide in the prognosis of the patient during the pregnant period. We have also seen, as Mortesen and Ellsworth (35) did before us, that patients with congenital heart disease with intracardiac shunts or shunts at any level between the systemic and pulmonary circuits do not tolerate pregnancy so well, developing mild symptoms and signs earlier in pregnancy than other patients with heart disease.

All our congenital heart disease cases went through pregnancy without complications, except one case in which the first pregnancy was complicated with congestive heart failure brought about by a pneumonic process. Her second pregnancy had a successful outcome. Since our cyanotic congenital disease patient was the one developing some complications, a word in the evolution of management of these cases is mandatory.

In 1905, Pouliot (36) was of the opinion that marriage should be forbidden in cyanotic cases. In 1920, Hoshsinger (37) believed that cyanosis was a good reason to terminate pregnancy, and as late as 1945, Semisch (38) held the view that cyanotic congenital cases should not be carried to full-term. Neill and Swanson (39), of the Johns Hopkins Hospital, have undertaken a follow-up survey of the outcome of pregnancy in those patients who had cyanosis-producing cardiac anomalies diagnosed at the Harriet Lane clinic. They noted that all infants born to mothers with cyanosis weighed less than the mean, without regard for the duration of the pregnancy, In other words, these infants are classical examples of intrauterine growth retardation.

Meyer (40) stated that cyanosis does not represent a contraindication to pregnancy and among 55 pregnancies reported by his group, the overall fetal mortality was 22 percent and there were 7 maternal deaths. There were 2 fetal losses and no maternal mortality in 9 patients who had a shunt procedure prior to pregnancy. Neill found (39) the hematocrit to be very important in making the fetal prognosis. Eighty-five percent of fetal mortality occurred when the hematocrit exceeded 65 percent, and 60 percent mortality with less severely elevated hematocrits (41).

The recent medical advances, especially those in cardiac surgery, make it timely to reassess the interaction of pregnancy and congenital heart disease. As pointed by our preliminary study, the prognosis for a successful pregnancy in patients with congenital heart disease is more favorable today than it was two or more decades ago.

Summary

During the two-year period of our study at the Department of Obstetrics and Gynecology of the University Hospital, we have seen 10 pregnant patients in whom cardiac surgery was performed prior to pregnancy. Prior to surgery there had been a total of 14 full-term pregnancies, and 11 instances of spontaneous abortions occurring all in a single patient. Two patients had gone into congestive heart failure at the time of their overloading periods. All patients in this report showed marked clinical improvement following cardiac surgery. After their cardiac surgery, 15 pregnancies and 2 spontaneous abortions occurred. There were 13 full-term vaginal deliveries and 2 low birth weight newborns. Only one patient developed congestive heart failure, coinciding with a penumonic process during one of her two pregnancies, which was successfully controlled medically.

Even though our data is not extensive enough to permit generalization, we have reached the following conclusions:

a. The cardiac status of most women of childbearing age with symptoms of organic disease can be improved significantly by surgery, and many can be returned to a normal reproductive life.
b. Based on the experience of others we conclude that surgery, in the presence of pulmonary edema refractory to therapy can be carried out with acceptable results on a pregnant woman, especially during the mid trimester (before the 28th week of pregnancy).

c. After surgical correction, many of the cardiac complications commonly seen during pregnancy, are significantly reduced in frequency.
d. Termination of pregnancy or sterilization is not indicated until the possibility of cardiac surgery is ruled out.
e. Cardiac lesions corrected surgically prior to pregnancy favor normal pregnancy and delivery, provided that infections, anemia, excessive exertion and sodium intake are curtailed.
f. Surgical correction should be considered in those cases of severe cardiac embarrassment, where medical treatment has not been successful.

Resumen

En dos años hemos estudiado, en el Departamento de Obstetricia y Ginecología del Hospital Universitario, 10 pacientes embarazadas, a las cuales se les había practicado cirugía cardíaca antes del embarazo. Antes de la operación había ocurrido en ellas un total de 14 embarazos a término, con 11 abortos espontáneos que ocurrieron en una misma paciente. Dos pacientes habían desarrollado insuficiencia cardíaca congestiva durante el período de sobrecarga de un embarazo antes de la cirugía. Todas las pacientes presentaron mejoría absoluta después de la cirugía cardíaca. Luego de ésta ocurrieron 15 embarazos y 2 abortos espontáncos. Hubo 13 partos a término, vaginales, y 2 partos donde el recién nacido, aunque a término, tenía un peso menor. Después de la cirugía sólo una paciente desarrolló, en uno de los dos embarazos, insuficiencia cardíaca congestiva, la que coincidió con un proceso pneumónico comprobado y fue controlada médicamente.

Aunque nuestras estadísticas no son extensas para permitirnos generalizaciones, hemos llegado a las siguientes conclusiones:

a) El status cardiovascular de una embarazada con síntomas de enfermedad orgánica cardíaca, se puede mejorar grandemente con cirugía, y la paciente puede retornar a una vida reproductiva normal.
b) Basado en la experiencia de otros, postulamos que la cirugía cardíaca se puede efectuar con resultados excelentes en la embarazada, en aquellos casos en que la insuficiencia cardíaca no puede ser controlada por los métodos usuales, y que el tiempo óptimo para realizar la operación es antes de las 28 semanas de embarazo.
c) Luego de la cirugía cardíaca se reducen muchas de las complicaciones que se ven durante la preñez en la embarazada cardíaca.
d) La esterilización y el aborto terapéutico no están indicados, sino que antes hay que considerar la posibilidad de cirugía cardíaca.
e) Podemos augurar un embarazo y parto normales en las pacientes con lesiones corregidas quirúrgicamente antes de la preñez, si controlamos las infecciones, la anemia, el ejercicio excesivo y la demasiada ingestión de sodio.
f) La cirugía cardíaca en la embarazada se debe considerar en aquellos casos con enfermedad del corazón que no han tenido mejoría con tratamiento médico adecuado.

References

1. *Peter, M.:* Accidents that may happen to pregnant women suffering from disease of the heart; Brit. Med. J., 2: 236, 1874.
2. *Logan, A. and Turner, R. W.:* Mitral valvotomy in pregnancy; Lancet 1: 1286, 1952.
3. *Brock, R. C.:* Valvotomy in pregnancy; Proc. Roy. Soc. Med., 45: 538, 1952.
4. *Cooley, D. A. and Chapman, D. W.:* Commissurotomy during pregnancy, JAMA, 150: 1113, 1952.
5. *Burt, R. L. and Bowden, R. H.:* Pregnancy following cardiac surgery; 90: 173, 1964.
6. *Veray, F. X., Hernández-Cibes, J. J., Pelegrina, I.:* Heart disease in pregnancy, Obst. and Gynec. 32: 424, 1968.
7. *Slekely, P., and Smith, L.:* The place of cardiac surgery in the management of the pregnant woman with heart disease: J. Obstet. Gynec. Brit. Common. 70: 69, 1963.
8. *Winter, W. R., Carmichael, D. B., Baronofky, I. D.:* Cardiac surgery associated with pregnancy. Am. J. Obst. Gynec. 76: 572, 1958.
9. *Eastman, N. J., Hellman, L. M. and Pritchard, J. A.:* Obstetrics, Appleton, New York, 1966.
10. *Kaufman, J. M. and Ruble, P. E.:* The current status of the pregnant cardiac; Ann. Intern. Med. 48: 1157, 1958.
11. *Mendelson, C. L.:* Cardiac Disease in Pregnancy, Medical Care Cardiovascular Surgery and Obstetric Management as Related to Maternal and Fetal Welfare, F. A. Davis et Co. Edit., Philadelphia, 1960.
12. *Benavides de Anda, P. H.:* Commissurotomy and pregnancy, GAC Med. Mexico; 89: 355, 1959.
13. *Ellis, J. D.:* Pregnancy and delivery after mitral valvotomy. J. Obst. Gynec. Brit. Common. 74: 24, 1967.
14. *Brousted, P., Dubourg, C., and Mahon, R.:* Grossesse et accouchement Apres Chirugie Cardiaque. Gynec. & Obst. 66: 5, 1967.
15. *Soulie, P., Acar, J., Degeorges, M., et Barrillon, A.:* Commissurotomie mitrale au cours de la grossesse. Arch. Mal. Cocur., 54: 361, 1961.
16. *Ciaramella, S.:* La gravidanza dopo commissurotomie mitralica. Arch. Di Obstet. Ginec. 69: 198, 1964.
17. *Pierret, R., Dussart, R., and Becchoff, J.:* Grossesse a pres

commissurotomie recente. Bul. Soc. Royale Belge de Gyn. Et Obst. 28: 1434, 1958.

18. *Mendelson, C. L.:* Medical care, cardiovascular surgery and obstetric management in the pregnant cardiac patient. J. of Kentucky Med. Assn., 61: 487, 1963.

19. *Watt, G. L., Bigelow, W. G., and Greenwood, W. F.:* Six years' experience with mitral commissurotomie during pregnancy. Amer. J. Obst. & Gynec., 77: 507, 1959.

20. *Jacobs, W. M., Cooley, D., and Goen, G. P.:* Cardiac surgery with extracorporeal circulation during pregnancy. Obstet. Gynec. 25: 167, 1965.

21. *Harthorne, J. W., Buckley, M. J., Grover, J. W. and Austen, W. G.:* Valve replacement during pregnancy. Ann. Intern. Med., 67: 1032, 1967.

22. *Johnson, A. S., Meyers, M. P., Eckhous, A. S., Bacher, B., and Limia, A.:* Successful pregnancies in patients with prosthetic mitral valves, Mich. Med. 65: 718, 1966.

23. *Otterson, W. N., McGranahan, G., and Freeman, M. V. R.:* Successful pregnancy with McGovern aortic prosthesis and long heparin therapy. Obstet. Gynec. 31: 273, 1968.

24. *Strickland, N. R. and Mount, J.:* Pregnancy after treatment of aortic stenosis and insufficiency with a Starr Edwards valve. Obstet. Gynec. 27: 508, 1966.

25. *Vernon, C. P.:* Comments of paper presented at the seventy third annual meeting of A. A. O. G., Hot Spring, Virginia, Sept. 1962. Appearing on Cannell, D. E. and Vernon, C. P.: Congenital heart disease in pregnancy. Obstet. Gynec., 85: 744, 1963.

26. *Brandenburg, R. O., Zitnik, R., Sheldon, R., and Wallace, R.:* Pregnancy and open surgery. Personal notes of paper presented at the 41st Scientific Sessions of the American Heart Association, Miami, Flo., Nov. 21-14, 1968 and abstracted Circulation 37: 4, sup. 6, VI-47, 1968.

27. *Dellepiane, G.:* Il parto dopo commissurotomia mitralica. Minerva Med., 49: 1, 1958.

28. *Schenker, J. G., and Polishuk, W. Z.:* Pregnancy following mitral valvotomy. Obst. Gynec., 32: 2, 1968.

29. *Burt, R. and Bowden, R.:* Pregnancy following cardiac surgery. Am. J. Obst. & Gynec. 90: 73, 1964.

30. *Mortensen, J. D. and Ellsworth, H. S.:* Pregnancy and cardiac surgery. Obst. & Gynec. 23: 889, 1964.

31. *Gilchrist, A. R.:* Cardiological problems in younger women: Including those of pregnancy and puerperium. Brit. Med. J. 1: 209, 1963.

32. *Cannell, D. E. and Vernon, C. P.:* Congenital heart disease in pregnancy. Amer. J. Obs. & Gyn. 85: 744, 1963.

33. *Espino Vela, J., and Castro Abreu, D.:* Congenital heart diseases associated with pregnancy. Amer. Heart J. 51: 542, 1956.

34. *Jacobs, W. M., Cooley, D. and Paul Goen, G.:* Cardiac surgery with extracorporeal circulation during pregnancy. Obst. & Gynec. 25: 2, 1967.

35. *Mortensen, J. D. and Ellsworth, H. S.:* Pregnancy before and after surgical correction of left to right cardiovascular shunts. Obst. & Gynec. 29: 241, 1967.

36. *Pouliot, L.:* Heart disease in pregnancy. Arch. Gen. de Med., Par. 195: 19, 1905.

37. *Hochsinger, K.:* Congenital heart disease in pregnancy, Zentralbl F. Gynak, 44: 1104, 1920.

38. *Semisch, Ch. W.:* III The Management of the pregnant cardiac patient. M. Clin. North. Am. 29: 449, 1945.

39. *Neill, L. A., and Swanson, S.:* Outcome of pregnancy in congenital heart disease, Abstracted Circulation 24: 1003, 1961.

40. *Meyer, E. C., Tulsky, A. S., Sigmann, P. and Silber, E. N.:* Pregnancy in the presence of Tetralogy of Fallot. Amer. J. Cardiol. 14: 874, 1965.

41. *Jacoby, W. J.:* Pregnancy with Tetralogy and Pentalogy of Fallot. Amer. J. Cardiol. 14: 866, 1964.

PRACTICA DE GRUPO:
Modalidad en la Prestación de Servicios Médicos

Onán E. Pérez, MHA

La fragmentación de la práctica médica en una gama de especialidades y super-especialidades, así como el contínuo e ininterrumpido aumento en los costos de los servicios médicos, han servido de base, para que los profesionales en el campo de la salud estudien y pongan en práctica diferentes sistemas o modalidades organizacionales y administrativas para la prestación de servicios de salud.

Entre las varias modalidades ya conocidas, tales como el cooperativismo, los seguros pre-pagados, etc., interesamos destacar el concepto de práctica de grupo, por ser ésta una modalidad que no se ha puesto en práctica en Puerto Rico, aunque es conocida por diferentes miembros de la clase médica y de los administradores de hospitales.

Se han hecho varias definiciones de lo que es práctica de grupo, por lo que estimamos conveniente presentar algunas de las más conocidas, de manera que se pueda tener una idea de cual o cuales de éstas podrían ajustarse mejor a una comunidad específica. Moore (1) la define "como un grupo de médicos y dentistas que combinan sus servicios profesionales, destrezas y recursos para la prevención y tratamiento de las enfermedades. Estos profesionales utilizan en común oficinas, facilidades, equipo y personal paramédico y administrativo". Hunt y Goldstein (1) dicen que es "la asociación formal de tres o más médicos que proveen servicios en más de una especialidad, donde los ingresos van a un fondo común y que se re-distribuyen de acuerdo a un plan establecido". El "Health Insurance Plan of Greater New York" (1) lo define como un "número de médicos autorizados a practicar la medicina, en una organización cualificada para proveer un cuidado médico completo según se requiera, ya sean en el hogar, la oficina del médico o en el hospital". La definición dada por la "American Association of Medical Clinics" (1) tiende a ser más específica que las anteriores, pues señala que el grupo médico podrá ser de "siete o más médicos a jornada completa, que mantengan una organización privada con el propósito de ofrecer servicios médicos generales de calidad, de acuerdo con el código de ética de la Asociación Médica Americana. El Grupo o Clínica debe tener en su "staff" de jornada completa por lo menos cinco médicos de las diferentes especialidades básicas, dos de los cuales deberán ser en medicina interna y cirugía general. El Grupo deberá ocupar separadamente un edificio u oficinas para llevar a cabo su práctica.

Tipos de Grupos

Las definiciones presentadas anteriormente nos señalan en términos generales lo que es la práctica de grupo. Sin embargo, hay diferentes tipos de grupo (2). Estos pueden organizarse respondiendo a las condiciones prevalecientes de una comunidad dada o a los intereses de los grupos de médicos en particular. En primera instancia, consideraremos el grupo de especialidades múltiples. Este se puede componer de médicos representativos de las especialidades básicas y de medicina general. Por su naturaleza, puede ofrecer servicios más completos, ya que sus servicios pueden ser más amplios. A nuestro juicio, se puede ajustar más a comunidades donde existan los recursos humanos necesarios para su organización y la demanda de servicios permitan una buena utilización de dichos recursos. Se pueden hacer ajustes entre sus componentes si la demanda de alguna de esas especialidades es menor que la de las otras. El especialista afectado podría formar parte del grupo a jornada parcial o en última instancia ofrecer sus servicios por contrato con el grupo médico. Un segundo tipo de grupo puede consistir de médicos de una sola especialidad. La escasez de especialistas en una misma rama es un factor limitante en la organización de este tipo de grupo. Consideramos que este se puede desarrollar

De la División de Centros de Diagnóstico y Casas de Salud del Departamento de Salud de la Capital.

más efectivamente en ciudades grandes donde haya una mayor concentración de especialistas. Un tercer grupo es el compuesto de médicos generalistas. Este grupo puede operar ya sea en ciudades grandes o pequeñas. A pesar de que la tendencia (3) actualmente entre los graduados de las escuelas de medicina es hacia la especialización, no nos cabe la menor duda que este profesional (el generalista) desempeña un papel de vital importancia en la prestación de servicios de salud. Utilizando un término del argot deportivo, es el hombre que reparte el juego canalizando el tratamiento del paciente hacia los diferentes especialistas que el caso amerite. Por esta razón recomendamos que cualquier grupo que se contemple organizar debe contar con los servicios de este profesional. Otros tipos de grupos incluyen los que tienen como base hospitales y escuelas de medicina. En el primero, la relación entre el hospital y el grupo debe ser de carácter contractual. En el segundo, la escuela deberá tener la responsabilidad médico-administrativa o relacionarse a través de una afiliación. Ambos grupos, sin embargo, consistirán de especialidades debido al tipo de servicios y actividades en que esas instituciones están involucradas.

Existen diferentes criterios en cuanto al número de médicos que deben componer un grupo. Hunt & Goldstein (1) hablan de 3 o más y el "American Association of Medical Clinics" (1) considera 7 o más. La Asociación Médica Americana (1) también señala 3 o más médicos. Aunque no existe un consenso de opinión en cuanto al número ideal de médicos que debe formar un grupo, los conocedores de la materia están de acuerdo en que el mínimo de que debe consistir el grupo es de 3. Consideramos que el número de médicos podrá ser determinado más bien por los recursos humanos y económicos disponibles, demanda por servicios, necesidades de salud de la comunidad, y facilidades de planta física y equipo que puedan habilitarse o haya existente para la prestación de servicios. Para esto último el Gobierno Federal a través de "Housing and Urban Development" garantiza préstamos a largo plazo.

A nuestro juicio, en Puerto Rico es viable la organización de grupos de especialidades múltiples en las áreas urbanas de mayor concentración poblacional, tales como San Juan, Ponce, Mayaguez, Arecibo, Caguas y Bayamón. Estimamos que es en estas ciudades donde ya hay suficientes especialistas y generalistas que puedan propiciar la organización de grupos de este tipo. La organización de grupos compuestos de especialistas solamente, no la consideramos factible todavía, a excepción quizás de San Juan, Ponce y Mayaguez donde podrían organizarse grupos de algunas especialidades tales como Pediátras, Radiólogos, Laboratoristas, Cirujanos, etc., dependiendo, desde luego, de la concentración de especialistas que haya en esas ciudades. Grupos de generalistas son viables en poblaciones de 30,000 o más habitantes, pues hay que tener en mente que el factor demanda es el que puede motivar muy especialmente la creación de este tipo de grupo.

Origen y Desarrollo de la Práctica de Grupo

Aunque se desconoce con exactitud donde se originó esta modalidad, se dá por sentado que es oriunda de los Estados Unidos (2).

A pesar de que con anterioridad al 1940 ya había grupos organizados, fue en esa década que tomó verdaderamente auge. Una de las motivaciones principales fue la experiencia de trabajo en equipo, obtenida por los médicos que sirvieron en el ejército durante la Segunda Guerra Mundial. Esta experiencia, concurrentemente con el desarrollo de las diferentes especialidades, fueron las que sirvieron de estímulo en la organización de grupos. Como secuela de la especialización, el médico se percató de la necesidad imperiosa de organizar un equipo de trabajo que cubriese las necesidades de salud de su clientela. Cuando leemos sobre las operaciones de transplantes de corazón, riñones y otros órganos, nos percatamos, que en muchas de éstas participa un promedio de 20 a 25 personas. El trabajo de equipo, es prácticamente mandatorio en la práctica médica.

En adición a los dos factores antes mencionados, podemos añadir dos adicionales que han tenido relevancia en la organización de grupos. Uno (5) tiene que ver con el aumento en la clientela del médico de práctica individual. Esto lo ha obligado a asociarse con otro de sus colegas para poder absorber la demanda de servicios. Por último, las exigencias y requisitos establecidos por los hospitales, en la práctica de las diferentes especialidades que garanticen alta calidad en el cuidado al paciente. Cabe anotar, que los grupos que se han organizado en Estados Unidos, han tomado aquellas formas que las leyes de los diferentes estados han permitido para su organización. Estas incluyen asociaciones, corporaciones, "partnerships" y grupos privados que mantienen médicos a sueldo. En Puerto Rico la práctica corporativa de la medicina no es permitida por nuestras leyes.

De acuerdo con estudios recientes conducidos por la Asociación Médica Americana, con la cooperación de la "American Association of Medical Clinics" y la "American Group Management Association" (2)

se tiene conocimiento de 4,287 grupos con un promedio de 25,449 médicos a jornada completa y 2,971 a jornada parcial. Un estudio similar, realizado en el 1959 reveló que para ese año había aproximadamente 1,546 grupos con 16,620 médicos a jornada completa y 1,389 a jornada parcial. El incremento registrado al 1966 es de 295 porciento en el número de grupos y de 200 porciento en el de médicos participantes. Para ese año, o sea en el 1966, alrededor del 15 porciento de los médicos estaban involucrados en la práctica de grupo. Estos datos nos dan un índice de la tendencia de los médicos en Estados Unidos hacia la organización de grupos.

Objetivo de la Práctica de Grupo

La práctica de grupo tiene como objetivo ofrecer servicios de salud de la más alta calidad en la forma más económica posible. La palabra clave para alcanzar esos objetivos, es "compartir". Compartir conocimientos e ideas con los demás miembros del grupo, indudablemente conducen hacia una calidad superior en la prestación de los servicios de salud. Compartir facilidades, equipo y personal en la organización de los servicios, permiten una utilización más eficiente y eficaz de los recursos disponibles, lo que por consiguiente limita los costos en que cada médico incurre cuando está en práctica individual.

Para poder compartir, se hace necesario romper los patrones de comportamiento de la práctica médica. A medida que llegan más especialistas gracias a la fragmentación anatómica del ser humano, el médico definitivamente no puede trabajar solo. Tiene que buscar el asesoramiento o referir el paciente a su colega de otra especialidad. No puede, en un gran número de ocasiones, encontrar el diagnóstico de la enfermedad en su consultorio privado; tiene que recurrir al radiólogo, al hematólogo, al internista, etc., en busca de soluciones a los interrogantes que le presenta el paciente. El trabajo de equipo se está haciendo cada vez más imperativo. De allí que la práctica de grupo esté aumentando a pasos agigantados en Estados Unidos, según lo demuestran los estudios a que hicimos referencia anteriormente. En Puerto Rico no han variado los patrones de práctica individual. Hasta donde tenemos conocimiento, no hay ningún grupo organizado que puede caer dentro del concepto de práctica de grupo. En la actualidad, el Departamento de Salud, con la cooperación de la Asociación Médica, estudian a fondo esta modalidad con miras a organizar un grupo de especialidades múltiples, bajo los auspicios de la ley número 81, aprobada en mayo de 1967. El triunfo o fracaso en la organización de este grupo y otros que puedan surgir en el futuro, dependerá esencialmente del factor humano. ¿Cuál es la actitud de los médicos en cuanto a compartir conocimientos, recursos humanos, facilidades y también ingresos por el bien común de servir a la humanidad? ¿Está dispuesto a perder su total independencia operacional y someterse a las disciplinas de un grupo del cual él puede formar parte? Estas y otras preguntas podrán ser contestadas única y exclusivamente por cada médico, si algún día un pionero puertorriqueño lo invita a organizar o a formar parte de un grupo. Mientras tanto, confiamos que la experiencia que se está teniendo en Estados Unidos puede servir de estímulo y guía a aquellos que en Puerto Rico comienzan a interesarse en esta modalidad.

Ventajas y Desventajas

Expuestos los conceptos generales de lo que es Práctica de Grupo y sus objetivos, es lógico que señalemos algunas de las ventajas y desventajas que dicha modalidad presenta tanto para el paciente como para el médico.

(1) Ventajas para el paciente: (a) Recibe servicios (1) de un grupo de médicos cualificados en diferentes disciplinas, ubicados en una misma estructura, por lo que su problema de salud puede ser resuelto en un lapso de tiempo relativamente breve; (b) El uso combinado de destrezas y recursos le permite utilizar más libremente las facilidades de diagnóstico y tratamiento; (c) Tiene disponible servicios competentes en todo momento; (d) Su historial médico se mantiene en un solo expediente; (e) El servicio le puede resultar más económico.

(2) Desventajas para el paciente: (a) Puede limitar hasta cierto punto la libre selección de médico; (b) Puede perder alguna intimidad en la relación médico-paciente debido a la forma en que los médicos se consultan entre sí, y al uso más extenso de personal para-médico; (c) Esto puede conducir a que el paciente considere que sus necesidades sicológicas y personales no están siendo atendidas en la misma forma que lo hace el médico de práctica individual.

Un análisis objetivo de las ventajas y desventajas nos señalan que los beneficios que puede recibir el paciente son mayores tanto en términos de calidad como de disponibilidad, continuidad y accesibilidad. Esto último, más bien desde el punto de vista económico, pues los costos del servicio, al reducirse los gastos de oficinas individuales, permitirían honorarios

más bajos, y por consiguiente los servicios estarían accesibles a un mayor número de mestra población.

(1) Ventajas para el médico: (a) Oportunidad de tener una semana con un horario regular de trabajo con tiempo libre para el descanso y otras actividades. Algún miembro del grupo lo sustituirá en sus días libres, cuando esté de vacaciones o tenga que ausentarse por otras razones; (b) accesibilidad y disponibilidad de equipo y facilidades; (c) Médicos disponibles para consulta; (d) Oportunidad de dedicarse de lleno a la práctica de la medicina. (Todo grupo debe tener un administrador que se dedique a atender los aspectos administrativos y financieros de la organización); (e) La relación con otros profesionales estimula la calidad y el mejoramiento de sus servicios; (f) Oportunidad de iniciarse en la práctica médica sin necesidad de hacer grandes inversiones de dinero; (g) Seguridad profesional y económica; (h) Elimina su relación monetaria directamente con el paciente, ya que tiene la estructura administrativa y gerencial que brega con este aspecto.

(2) Desventajas para el médico: (a) Los médicos que no forman parte del grupo a veces se tornan reacios a referir sus pacientes a especialistas del grupo; (b) Algunos especialistas pueden tener ingresos mayores en práctica individual que trabajando en grupo, donde los ingresos son distribuídos entre todos los miembros; (c) Algunos miembros pueden sufrir por los errores que puedan cometer otros miembros del grupo; (d) Tiene que aceptar las normas y decisiones de la mayoría; (e) Aumenta la posibilidad de desacuerdos en cuanto a la división de ingresos.

En términos generales, las ventajas que he enumerado anteriormente compensan cualquier contratiempo que pueda surgir en las relaciones que diariamente existan entre los componentes del grupo y con otros médicos de la comunidad.

Otros Beneficios Marginales

Una de las áreas que más preocupa a todo ser humano es la seguridad económica de él y de su familia, especialmente cuando los años de vida productiva comienzan a acortarse y los hijos inician o van a comenzar estudios universitarios. En grupos bien organizados en Estados Unidos como por ejemplo el de Montefiore en Nueva York, de los ingresos que deriva el grupo, se segregan fondos para la educación de los hijos de sus miembros. En igual forma, se depositan fondos en fideicomiso y se hacen inversiones en bienes raíces, seguros de vida, etc., a ser disfrutados cuando se llegue a la edad del retiro.

Algunos grupos otorgan licencia sabática a sus miembros, de manera que estos puedan dedicarse al estudio (6), la investigación o a visitar diferentes países en proyectos especiales que puedan ser auspiciados por el grupo o por entidades filantrópicas o gubernamentales. La participación en estas actividades, así como en asambleas, seminarios, etc., sirven de estímulo para el mejoramiento profesional del médico. No debemos perder de vista que durante su ausencia, el médico no pierde su clientela, pues los restantes miembros del grupo serán responsables de ofrecerle los servicios profesionales que ésta requiere.

Distribución de Ingresos

Un aspecto que tiende a crear conflictos cuando se organiza un grupo, concierne a la distribución o repartición de los ingresos entre sus miembros. Existen varias fórmulas, todas tendientes a distribuir en la forma más equitativa posible los ingresos derivados por el grupo. Las que mencionamos a continuación son solamente algunas de las modalidades utilizadas por diferentes grupos en Estados Unidos (4): (a) Asignación de un porciento fijo a los miembros organizadores del grupo. A medida que se vayan reclutando nuevos miembros, se irá reduciendo el porciento que le corresponde a los más viejos. Este plan reconoce la contribución hecha por el miembro fundador en sus primeros años; le provee incentivo a los más jóvenes, y reduce a un mínimo la competencia. Sin embargo, no provee penalidades para los que no producen lo suficiente, ni recompensa para los más diligentes. Carece de flexibilidad; (b) Acreditación de los servicios rendidos por el médico dándole un valor relativo a base de puntos. Al finalizar el mes, el ingreso neto se divide de acuerdo con los créditos ganados por cada médico. Este plan retribuye al médico de acuerdo con los servicios rendidos por lo que estimula la competencia en vez de la cooperación. Tampoco reconoce el valor intangible que un médico puede darle al grupo; (c) Pago basado en la inversión original hecha por cada médico. Es un plan simple, pero inflexible, ya que le puede rendir grandes ingresos a los inversionistas, muy fuera de proporción a los servicios que realmente ofrecen; (d) Asignación de un salario fijo a los socios de acuerdo con una clasificación establecida, distribuyendo al final del año los ingresos netos recibidos. Este plan hace difícil predecir cual habrá de ser el ingreso anual de cada miembro del grupo. No provee incentivo para los que

más trabajen. y es relativamente inflexible en lo que concierne a la clasificación de cada uno; (e) Un sistema a base de puntos o unidades puede ser usado. En éste, la puntuación se basa en (1) número de años con el grupo, (2) número de pacientes nuevos que trae al grupo, (3) ganancias por concepto de ingresos; (4) participación en la inversión original; (5) status profesional en cuanto a si es o no diplomado; (6) valor relativo de la especialidad, y (7) otros factores. En algunas ocasiones los socios tienen un salario básico similar, sobre el cual se dividen los ingresos netos del grupo usando el sistema de puntos. Este sistema es más flexible y ofrece la oportunidad de otorgar incentivos y hacer diferentes tipos de arreglos. Su dificultad estriba en el sistema de contabilidad que hay que establecer, pues puede resultar costoso. y (f) Distribución de salarios anual o trimestralmente. Las cantidades asignadas estarán basadas en (1) el rango o posición que ocupe en el grupo; (2) reputación profesional; (3) años de servicios con el grupo; (4) años de experiencia en la práctica de la medicina; (5) su contribución en términos generales al grupo. Por este método el grupo puede tomar en consideración necesidades especiales de la familia de cada uno de sus componentes: enfermedades, número de dependientes, etc. En este plan existe la tendencia a ofrecer igual remuneración a los jefes de departamento.

Como se habrá podido observar, no existen criterios uniformes para la distribución de los ingresos y la remuneración de los médicos que forman un grupo. Estimo que entre los métodos mencionados, los que menos fricción pueden causar son los basados en un sistema de puntuación, especialmente el señalado en el inciso (e) y la distribución de ingresos utilizando los criterios que aparecen en el inciso (f). Es nuestra recomendación que al organizarse un grupo, se aclare en la forma más diáfana posible los criterios a utilizarse en la distribución de ingresos tanto entre los miembros fundadores como entre aquellos que subsiguientemente puedan venir a formar parte del mismo.

Conclusion

La práctica de grupo es una modalidad que debe ser explorada por la clase médica, por las ventajas que ésta le presenta tanto al médico como al paciente que solicita sus servicios.

La legislación recientemente aprobada por nuestro gobierno tiende a romper patrones arcaicos en la prestación de servicios de salud y abre nuevos horizontes que puedan hacer posible enfoques más realistas que satisfagan las demandas y necesidades de nuestra comunidad. En igual forma, la clase médica, individual y colectivamente, debe revisar y evaluar su "modus operandi" para que esos nuevos conceptos a desarrollarse en futuro inmediato a través de la ley número 81 de mayo de 1967 y la ley número 42 de mayo de 1969 permitan alcanzar el objetivo fundamental de ofrecer servicios totales de salud de la más alta calidad a toda la población, indistintamente del nivel socio-económico a que el individuo pertenezca. La práctica de grupo puede jugar un papel muy importante en el desarrollo de esos nuevos programas.

Resumen

La práctica de grupo ha sido el resultado de una serie de factores que incluyen la diversidad de especialidades en la práctica de la medicina, el aumento en los costos de los servicios médicos, y el incremento en la demanda por más y mejores servicios de salud.

Se define la práctica de grupo como la asociación formal de varios médicos, quienes combinan sus servicios profesionales, destrezas y recursos para la prevención y tratamiento de la enfermedad. Hay organizados diferentes tipos de grupos, siendo los más conocidos los de especialidades múltiples, los de una sola especialidad, y el de generalistas. Por su naturaleza, el grupo de especialidades múltiples puede ofrecer servicios más completos. En Puerto Rico este grupo es más viable en ciudades grandes. Grupos de generalistas pueden organizarse en pueblos más pequeños, con población de 30,000 o más habitantes. Grupos de especialistas pueden ser factibles en San Juan, Ponce y Mayagüez.

Aunque se desconoce donde se originó esta modalidad, existe suficiente evidencia para señalar a Estados Unidos como el país donde ésta fue iniciada. Existe la tendencia de aumento en la organización de grupos en Estados Unidos. En Puerto Rico no tenemos conocimiento de que haya alguno organizado. El Departamento de Salud en la cooperación de la Asociación Médica estudian a fondo esta modalidad.

Las ventajas que la práctica de grupo ofrece tanto al médico como al paciente son mucho mayores que las desventajas. Los beneficios marginales que deriva el médico de esta práctica, incluyen mejores condiciones de trabajo y seguridad para él y su familia.

Una de las áreas más críticas para la organización de un grupo es la distribución de los ingresos por lo que debe ser estudiada y analizada antes de llegar a una decisión final sobre el método a utilizarse. Existen varios sistemas con diferentes criterios sobre

la forma en que se pueden distribuir los ingresos. Cualquiera que se adopte debe ser elaborado en tal forma que evite la fricción entre los miembros del grupo.

References

1. Building America's Health - A Report to the President, Vol II - 1952.
2. Promoting the group practice of medicine - Report of the National Conference on Group Practice - Oct. 1967.
3. *Howell, George T.:* The relationship of the medical school to group practice - Pennsylvania State University 1967.
4. Group Practice: Guidelines to Forming or Joining a Medical Group - Second revision - 1957.
5. *Weineman, E. Richard, MD:* Problems and perspectives of group practice - Yale University School of Medicine 1968.
6. *Brewester, Agnes:* Group practice needs and methods of meeting them, PHS - Va. 1967.

CONSUMPTION COAGULOPATHIES:
A Review

C. H. Ramírez-Ronda, MD

There is a variety of clinical situations characterized by a syndrome consisting of hypotension, renal cortical necrosis, and a generalized bleeding tendency associated with post mortem findings of widespread deposition of fibrin in the microvasculature. This condition has been given various names including defibrination syndrome, disseminated intravascular coagulation (DIC) and consumption coagulopathy.

The experimental prototype of disseminated intravascular coagulation is the generalized Shwartzman reaction or the Sanarelli-Shwartzman phenomenon (1, 2, 3). This reaction is classically produced in rabbits by two intravenous injections of endotoxin derived from gram negative bacteria, the second injection given 24 hours after the first. The animal dies in irreversible shock within 24 hours (3). A generalized bleeding tendency develops, caused by a significant drop in the levels of factors II, V, VIII, fibrinogen and platelets. Autopsy reveals the deposition of fibrin throughout the microvasculature. Fibrin is deposited particularly heavily in the glomerular capillaries of the kidneys with resultant bilateral renal cortical necrosis. The above described reaction is considered to be the characteristic pathologic lesion of the generalized Shwartzman reaction in experimental animals as well as in disseminated intravascular coagulation in man.

The mechanism by which endotoxin triggers the clotting mechanism is through damage of the platelet membrane with resulting release of platelet factor 3, a phospholipid with potent thromboplastic activity or through the activation of Hageman factor XII (4). The resulting massive intravascular deposition of fibrin produces severe hypotension (secondary to occlussion of pulmonary and splanchnic vasculature with resulting decrease of venous return to the heart), and a hemorrhagic diathesis (secondary to the utilization of a number of clotting factors necessary for normal hemostesis). In the experimental model the endotoxin always activates the clotting mechanism but the first injection has no major consequence since the reticulo-endothelial system is able to clear the circulation of endotoxin, activated clotting factors and fibrin. The second injection produces massive intravascular precipitation of fibrin which is the cause of hypocoagulability and the peripheral vascular disturbance. If the reticulo-endothelial system is first blocked by the administration of thorium dioxide (Thorotrast) or a particulate matter such as albumin, then a single injection of endotoxin will suffice to produce intravascular coagulation (5). Adrenal steroids depress phagocytosis by the R-E system and make a "priming" dose of endotoxin unnecessary (7). Cases have been reported of a possible accelerating effect of prednisone in intravascular coagulation (8). In pregnant animals a single dose is sufficient, probably not because of inadequate R-E phagocytic function, but because of the known elevation of certain clotting factors as well as the decreased fibrinolytic activity which occurs in pregnancy (5).

Although the mode of production of the shock, bleeding diathesis and renal cortical necrosis in gram-negative septicemia in man remains controversial or speculative, a group from Emory University (9) reported consumption coagulopathy occurred in 31 percent of septicemias, and most striking was their finding that consumption coagulopathy occurred most frequently in those cases with hypotension. To correlate this, a hypothesis has been developed: the activation of factor XII by endotoxin, which would initiate coagulation but also activates kallikreinogen to kallikrein which would release bradykinin from plasma kininogen. Bradykinin, the most potent mamalian vasodepressor known which also increases vascular permeability and could produce increased vascular permeability leading to shock. Once shock occurs a vicious cycle develops since local tissue damage secondary to anoxia triggers further coagu-

From the Department of Medicine, University Hospital, San Juan, Puerto Rico.

lation, with resulting consumption of clotting factors II, V, VIII, fibrinogen and platelets (10). Experimental and clinical evidence of disseminated intravascular coagulation is provided by Hardaway (4). A theoretical contraindication to the use of adrenal steroids in septic shock is apparent (7).

The clinical situations which produce disseminated intravascular coagulation in man do so by introducing material with thromboplastic or clotting activity into the circulating blood. Among these are included obstetrical complications, gram-negative sepsis, acute hemolysis, carcinomatosis and snake venoms. Fat embolism may occasionally lead to consumption coagulopathy through activation of Hegeman factor (factor XII) in P. T. A. (factor XI). The Kasabach-Merritt syndrome (bleeding in the presence of marked thrombocytopenia and hypofibrinogenemia in association with giant hemangioma in infants) has also been included among the conditions which may lead to intravascular coagulation (6). Although the mechanism in this situation is not clear, it is supposed that platelets are consumed locally in the stagnant blood at the site of the hemangioma.

Of importance is that the intravascular coagulation which follows is nearly always associated with secondary fibrinolysis. We must now examine the fibrinolytic system.

Fibrinolysis

Certain parallels can be drawn between coagulation and the fibrinolytic systems. The former is concerned with fibrin formation and acts to maintain hemostasis while the latter lyses fibrin and thus maintains vascular potency. Thrombin and plasmin are both proteolytic enzymes which are activated from inactive precursors (prothrombin and plasminogen) by activators—that is, by thromboplastic activity and plasminogen activators respectively. Thromboplastic activity can be derived either from extrinsic (tissue) or intrinsic (plasma) systems, while plasminogen activators can similarly be classified as either tissue or plasma activators (See Fig. 1). It has been suggested that the two systems are in dynamic equilibrium with the continuous formation and lysis of fibrin occurring simultaneously in normal persons (11). However hemophiliacs or patients on anticoagulant therapy do not have evidence of decreased fibrinolytic activity and for this and a variety of other reasons this theory is generally not accepted (12).

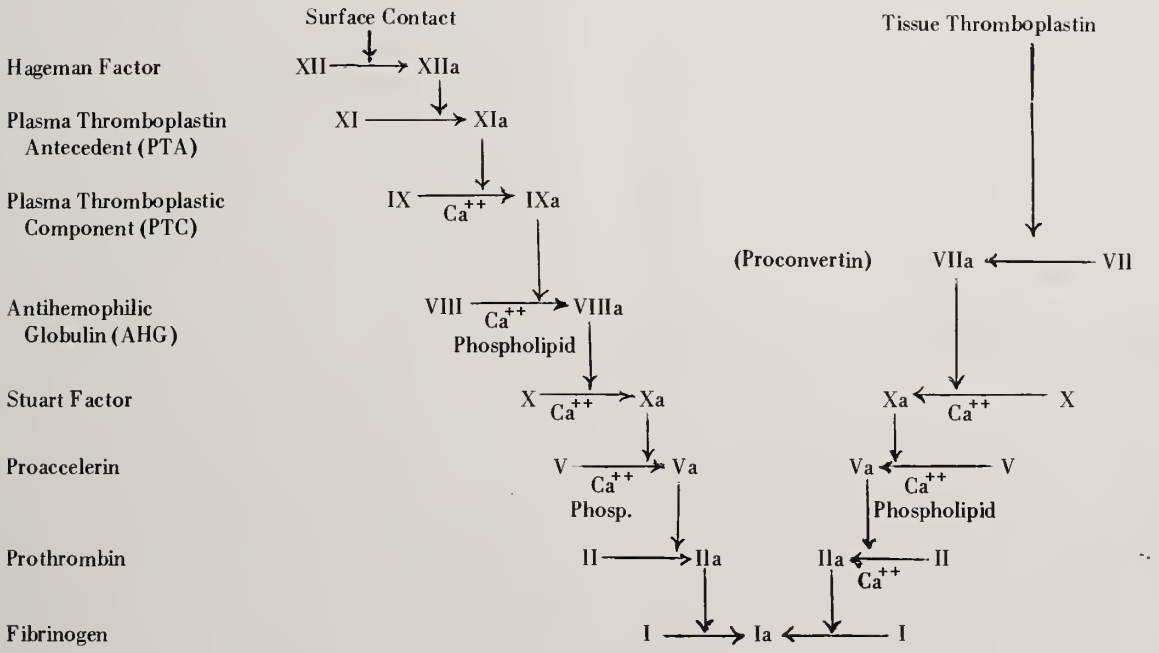
A number of possible mechanisms have been suggested by which intravascular coagulation can lead to fibrinolysis. Anoxia and ischemia may release plasma activators from the endothelium of affected vessels (13). Deposition of fibrin in the kidney, lung, liver or spleen could trigger the release of the tissue activators of those organs (14). Factor XII, activated during the process of defibrination, can itself act as a plasminogen activator. If the resultant fibrinolysis is effective at the local level the fibrin deposits will be cleared away and rapid activation of fibrinolysis may be one reason why microthrombi have not been demonstrated histologically in all cases of DIC. If fibrinolysis is ineffective, the thrombi will persist; if excessive, hemorrhage may result. The active fibrinolytic enzyme, plasmin, digests both fibrin and fibrinogen, producing a series of peptides called "fibrinogen split products". Certain of these fibrinogen fragments strikingly interfere with hemostasis by acting in three ways. First, the split products prevent polymerization of soluble fibrin monomers (resulting from the interaction of thrombin and fibrinogen) into the fibrin polymer. This causes the markedly prolonged thrombin time which is characteristic of fibrinolytic states. Secondly, the split products posses heparin-like activity and inhibit the activation of several of the clotting factors. Finally, they interfere with platelet aggregation with a resultant thrombasthenia.

The fibrinogen degradation products retain some of the antigenic determinants of the parent molecule, so they can be readily detected by immunologic techniques using antifibrinogen serum. The demonstration of such split-products in the serum of a patient that is hypotensive and who has a bleeding diathesis is one piece of evidence for the occurrence of intravascular coagulation and secondary fibrinolysis (15). The products can also be found in cirrhosis of the liver and after administration of urokinase (16).

Clinical Syndromes

When we look at the clinical situation we must keep in mind that disseminated intravascular coagulation (DIC) is an intermediary mechanism of disease, a mechanism which plays a prominent role in a variety of disease states. These syndromes can be roughly grouped according to the agent which induces the clotting episode. In spite of the diversity of etiologic factors which can produce disseminated clotting, the clinical picture which results is remarkably constant

INTRINSIC AND EXTRINSIC COAGULATION MECHANISM



FIBRINOLYSIS

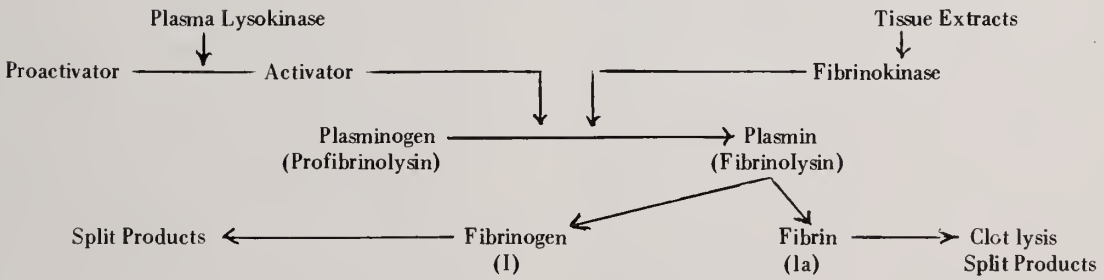


Figure 1

and is generally characterized by shock, alterations in hemostasis and tissue necrosis (17). The first two we may call immediate manifestations (3). Late or delayed manifestations such as acute liver failure, acute renal failure, heart failure, acute pulmonary failure, acute pancreatitis, and hemorrhagic enteritis, are the result of tissue necrosis (3).

Hypotension of varying degree is an almost universal finding and may range from a slight drop in blood pressure to severe hypotension. Disseminated clotting may be at least partly responsible for the irreversible shock that can complicate gram-negative septicemias, hemorrhage and other conditions (10). The shock is due to obstruction to blood flow through both the hepatic and the pulmonary circulations with resulting decrease in venous return to the heart and decrease in cardiac output.

Some degree of derrangement of hemostasis is also nearly always present. This may result only in abnormal laboratory tests of coagulation with no clinical bleeding or there may be widespread petechiae, ecchymoses, and bleeding from all mucous

membranes. Large ecchymoses at venipucture sites in a patient who has recently become hypotensive may be the only evidence of a potentially fatal coagulopathy (18).

Intravascular thrombosis with inadequate secondary fibrinolysis results in local tissue necrosis. This is most often seen clinically as hematuria and acute renal failure, but post-partum pituitary necrosis, hemorrhagic adrenal necrosis, non-occlusive hemorrhagic intestinal necrosis, hemorrhagic pancreatitis and other lesions mentioned before may all, on occasion, complicate the course of DIC.

As I have mentioned before DIC is almost always accompanied by activation of the fibrinolytic system but the latter presents in various categories. In the first, intravascular coagulation predominates; secondly, intravascular coagulation with insufficient activation of the fibrinolytic system; thirdly, intravascular coagulation with overwhelming activation of the fibrinolytic system and lastly predominant fibrinolytic activation (19).

The appearance of hypotension and echymoses with or without anuria should always suggest the possibility of disseminated intravascular clotting. Consideration of the diagnosis is strengthened if the above syndrome occurs in association with one of a number of disease states in which it has been described. I will try to describe the conditions according to the agent which produces or induces clotting. The major agents responsible are bacterial endotoxins, intravascular hemolysis, tissue extracts, antigen-antibody complexes and chemical and physical agents.

Bacterial endotoxins, as stated above, may produce intravascular coagulation by the release of platelet factor 3, a potent thromboplastic agent. The largest number of leases comes from the obstetrics field like septic abortions, chorioamnionitis and missed abortions. Organisms isolated have been *E. coli*, *Neisseria meningitidis*, *Aerobaeter aerogenes*, *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Clostridium perfringens* and *Serratia marcescens* (2, 9, 20, 21). In patients with fulminating meningococcemia DIC occurs with relative frequency and it is often preceded by a sharp drop in platelet count. Heparin may play a crucial role in the therapy of such cases (22, 23). The hemorrhagic adrenal necrosis which characterizes the Waterhouse-Friderichsen syndrome is due to microthrombi in the adrenal sinusoids and may be an example of local tissue necrosis which can occur in DIC.

There is a thromboplastic property in the red blood cells which may lead to intravascular activation of the clotting system during *acute hemolysis*. DIC has been found in incompatible blood transfusions, malaria, Marchiafava-Micheli (paroxysmal nocturnal hemoglobinuria) anemia, favism and Gasser syndrome (hemolytic-uremic) (2). The hemolytic-uremic syndrome is the association of hemolytic anemia and acute renal disease, it occurs in three main forms; an acute illness affecting infants and young children; an illness with more diverse features affecting adults as a feature of rapidly progressive malignant hypertension, or renal failure associated with childbirth. The condition is more common in children where the vascular changes are confined to the kidney. DIC occurs as an intermediary mechanism in this condition. Etiologic agents including rival and immunologic have been looked upon with various evidences (24). Other studies do point out that giving consideration to other factors, in the pathogenesis of this syndrome the DIC plays the most important part but there must also be a depressed reticuloendothelial system (25). Another condition mentioned because it can present with acute renal failure due to microthrombi but with different pathophysiology, thrombotic thrombocytopenic purpura, lacks the stigmata of defibrination in spite of the presence of characteristic widespread thrombi in the small blood vessels. Recent studies of this unique situation of disseminated thrombosis without defibrination revealed a defective release of plasminogen activator from the vascular endothelium of the thrombosed vessels, leading to failure of lysis of the fibrin thrombi. This finding not only explains the lack of consumption of fibrinogen and other factors by clotting and lysis in this condition, but also points out the direct relationship between the lysis of fibrin by the activated fibrinolytic system and the production of defibrination (26, 27). After this we may say that DIC is not the intermediary mechanism of TTP.

Tissue products whether derived from tumor breakdown products or necrotic placental tissue have thromboplastic activity and can trigger intravascular clotting upon exposure to circulating blood. Thus DIC occurs in a variety of metastatic carcinomas. Neoplasms are particularly likely to produce chronic intravascular coagulation in which the patient may present with a bleeding tendency which is reversed by heparin. In pancreatic carcinomas and lung neoplasms this mechanism has been implicated in migrating thrombo-

phlebitis (2). Non-bacterial thrombotic endocarditis, (marantic endocarditis), seen in persons with terminal carcinoma may result from the thrombotic tendency which complicates certain tumors (17). Degenerating benign tumors like myomata may produce the syndrome (28). A large group of hematologic malignancies especially acute promyelocytic leukemia and stem cell leukemia may manifest intravascular coagulation with bleeding tendency which is reversed by heparin (29). Even though speculative there are reports that the cause of death in massive pulmonary embolism might be a consumption coagulopathy which is triggered by release of thrombin absorbed onto the fibrin or contained within pockets of serum within the clot (30). A case of consumption coagulopathy in multiple pulmonary emboli has been reported (31). Infarction and necrosis of the placenta can cause disseminated clotting and as examples we have toxemias of pregnancy, hydatidiform moles, abruptio placentae and others. Even more interesting is the hypothesis that hyaline membrane disease may be mediated by DIC triggered by placental extracts (32).

Chemical and physical agents which can provoke disseminated clotting include trypsin, snake venom, and amniotic fluid. Trypsin, like thrombin is a proteolytic enzyme and as such possesses thromboplastic activity. If released into the blood stream during an episode of acute hemorrhagic pancreatitis, it can produce widespread thrombosis and bleeding. Some snake venoms, especially viper venoms, have well recognized thromboplastic properties. The bite of the Malayan pit viper produces incoagulable blood but spontaneous bleeding is minimal; the active principle in the venom—arvin—converts fibrinogen to fibrin directly without involving the other clotting factors and so induces a "pure" defibrination which is relatively benign. Its clinical use in the treatment of occlusive cardiovascular disease is being explored (33). Amniotic fluid has a low but definite thromboplastic activity, so amniotic fluid embolism may be associated with disseminated clotting.

The above conditions are characterized by DIC and, almost always, by secondary fibrinolysis in various degrees. A possible exception is the chronic intravascular coagulation seen in persons with tumors in which fibrinolysis may be minimal (34). There are rare situations in which fibrinolysis may occur alone, as a primary event, not preceded by an episode of disseminated clotting. Such "primary fibrinolysis" has been described following thoracic surgery, in patients with prostatic carcinoma, carcinoma of genital tract, acute promyelocytic leukemia and cirrhosis (15). A bleeding tendency in a patient with cirrhosis may result from decreased production of coagulation factors or from thrombocytopenia due to hypersplenism. However, the cirrhotic liver also clears the blood of plasminogen activators less effectively than its normal counterpart and itself manufactures an abnormal plasminogen activator. The resulting fibrinolysis; in conjunction with other hemostatic defects, may lead to a grave hemorrhagic state. Control of fibrinolysis might halt the bleeding despite persistance of the other defects (35, 36).

Neurologic manifestations like transient cerebral ischemia and permanent damage have resulted from DIC (37).

Laboratory Diagnosis

If the clinical situation suggests the occurrence of an episode of disseminated clotting, there are certain laboratory procedures which may be of help in determining whether a hemostatic defect exists; and, if such a defect is found whether it is due to DIC with secondary fibrinolysis or to primary fibrinolysis.

Intravascular coagulation produces *thrombocytopenia* and a decrease in those clotting factors which are normally used up in the clotting process, e. g. factors V, VIII, prothrombin and fibrinogen. A low platelet count is nearly universal accompaniment of disseminated clotting in contrast with primary fibrinolysis in which platelets are not decreased. Thus, the detection of thrombocytopenia is excellent evidence against primary fibrinolysis if there is no other obvious cause for low platelets such as bone marrow replacement by tumor or liver cirrhosis. Thrombocytopenia is reflected by a prolonged bleeding time, defective clot retraction or by a platelet count. A very useful simple way of evaluating platelets is to examine a peripheral blood smear.

The *clotting time* assays all factors except factor VII, that is, factors XII, XI, IX, VIII, X, V, prothrombin and fibrinogen. It does not detect thrombocytopenia and is a very insensitive test, becoming abnormal only if one or more of the above factors falls below five per cent.

The *partial thromboplastin time* (PTT) is performed by adding partial or incomplete thromboplastin and Ca^{++} to citrated plasma and measuring the time required for clot formation. Normal PTT is less than 70 sec. The PTT measures the same

factors as does the clotting time but it is much more sensitive. The *prothrombin consumption test* (PTC) and *thromboplastin generation test* (TGT) may also be used to evaluate the intrinsic system but are no more sensitive and more difficult to perform.

The *prothrombin time* measures the factors involved in the extrinsic system, e. g., factors VII, X, V, prothrombin and fibrinogen (38, 39, 40). During DIC, factors V, VIII, prothrombin and fibrinogen are consumed so the prothrombin time and PTT would be expected to be prolonged. However, primary fibrinolysis results in the formation of split products which have a heparin-like effect and so fibrinolysis alone, in the absence of disseminated clotting, will also prolong the prothrombin time and PTT.

Fibrinogen levels can be estimated by the "Fi Test"® – a semiquantitative agglutination procedure which utilizes polysterene particles coated with anti-fibrinogen serum. When plasma containing fibrinogen is added, agglutination occurs. Dilution of the plasma gives an estimate of the amount of fibrinogen present. Normal fibrinogen levels range from 300-500 mg percent and are significantly higher in pregnant women than in other persons. Thus, a fibrinogen level of 100 mg percent in a pregnant woman suspected of having DIC represents a marked fibrinogenopenia. The lowest levels of fibrinogen are seen in persons with DIC and secondary fibrinolysis. With primary fibrinolysis fibrinogen levels will only fall below 150 mg percent when fibrinolytic activity is very excessive. It should be recalled that fibrinogenopenia can also occur with acute blood loss as well as in severe impairment of liver function (40).

Thrombin time is performed by adding thrombin to plasma, a clot normally forming in less than 10 seconds. This is a non specific but very useful test for fibrin split products. It is slightly prolonged in primary fibrinolysis but if markedly prolonged, it strongly suggests the occurrence of disseminated clotting with secondary fibrinolysis (39).

The presence of fibrinolysis can be determined by observing a tube of clotted blood for evidence of lysis. A clot normally remains intact for at least 24 hrs. Lysis of an euglobulin clot normally begins sometime after 3 hours, the normal being around 90 minutes. The *euglobulin lysis time* is shortened in primary fibrinolysis and in DIC with secondary fibrinolysis. However, it is shortened much more in the former than with DIC. The immunologic demonstration of fibrin breakdown products is another way of determining whether fibrinolysis has occurred.

The *ethanol gelation test* which can be performed by adding nine drops of plasma, one drop of 0.1 N sodium hydroxide and three drops of 50 percent ethanol produces a solution containing 12 percent ethanol and having a pH greater than 7.70. Gel formation within the first minute constitutes a positive test, which has been reported as positive in five out of five patients with DIC (41).

In summary, a marked decrease in euglobulin lysis time with a normal platelet count moderate and variable decrease in fibrinogen level and prolongation of the thrombin time suggest "primary fibrinolysis". DIC, which as stated above, is nearly always associated with some degree of fibrinolysis, is characterized by only a moderately decreased euglobulin lysis time, thrombocytopenia, and usually a marked decrease in fibrinogen level, prolongation of the thrombin time and positive ethanol gelation test (42). (See Table I.)

Treatment

Heparin is considered the treatment of choice for DIC (43, 44). Heparin would be expected to inhibit the clotting tendency and allow the removal of fibrin thrombi and the build up of clotting factors. In addition, activation of the fibrinolytic system would stop and evidence of secondary fibrinolysis would disappear. Improvement in the clotting picture following heparin therapy provides perhaps the ultimate piece of evidence for the existence of a consumption coagulopathy.

In cases in which fibrinolysis has been activated primarily and threatens life, epsilon-amino-caproic acid (Amicar®) can be used to inhibit the fibrinolytic process (43). However, if Amicar is used in cases in which fibrinolysis is secondary to intravascular clotting, the fibrin thrombi will not be removed and tissue necrosis and irreversible shock may result. There is also at least a theoretical contraindication to the use of fibrinogen in DIC because such replacement therapy might also accelerate the deposition of fibrin thrombi (2).

Summary

A review of the consumption coagulopathies is

TABLE I: LABORATORY DIFFERENTIATION OF DIC AND "PRIMARY FIBRINOLYSIS"

Test	DIC with secondary fibrinolysis	"Primary Fibrinolysis"
Euglobulin lysis time	Moderately decreased (usually greater than 30 minutes)	Markedly decreased (about 10 minutes)
Platelet count	Decreased	Normal
Thrombin time	Markedly prolonged (over 30 seconds)	Moderately prolonged (about 20 seconds)
Fibrinogen level	Markedly decreased (less than 150 mg percent)	Moderately decreased (greater than 150 mg percent)
Prothrombin time	Prolonged	Prolonged
Partial thromboplastin time (PTT)	Prolonged	Prolonged
Ethanol gelation	Positive	Negative

presented with emphasis on the pathophysiology, based on the generalized Schwartzman reaction. The mechanisms of endotoxin shock is outlined with reference to consumption coagulopathies. The fibrinolytic system is mentioned in relation to DIC and both, the clotting mechanism and fibrinolytic system are compared. The clinical syndromes presented are grouped from etiologic factors, taking as a base the clinical picture of shock, alterations in hemostasis and tissue necrosis seen in all cases of DIC. Specific etiologic agents are discussed in some detail — bacterial endotoxins, intravascular hemolysis, hemolytic uremic syndrome, neoplasms, chemical agents and obstetrical complications. A review of the laboratory tests used in the differential diagnosis of DIC with secondary fibrinolysis and primary fibrinolysis is presented with emphasis on the simpler and more specific tests. The therapy of DIC with heparin is briefly discussed. The risk in the use of epsilon-aminocaproic acid in this condition is discussed.

Resumen

Se presenta un repaso de las coagulopatías de consumo con enfoque en la patofisiología basada en la reacción generalizada de Schwartzman. Se delinea el mecanismo del shock endotóxico referente a las coagulopatías de consumo. El sistema fibrinolítico se menciona en relación a coagulación intravascular diseminada (CID) y se comparan los mecanismos de coagulación y fibrinólisis. Se presentan los síndromes clínicos agrupados desde el punto de vista etiológico, tomando como base el cuadro clínico de shock, alteración en hemostasis y necrosis de tejidos común a todos los casos de CID. Se discuten los agentes etiologicos en algún detalle, especialmente, endotoxinas bacterianas, hemolisis intravascular, síndrome uremico hemolítico, neoplasmas y las complicaciones obstetricas. Se presenta un repaso de las pruebas de laboratorio usadas para hacer el diagnostico diferencial de CID con fibrinólisis secundaria y fibrinolisis primaria con enfasis en las pruebas sencillas y más específicas. Se discute el tratamiento de CID con heparina a la vez se advierte que antes de instituir tratamiento en casos de CID con fibrinólisis secundaria vs. fibrinólisis primaria debe evaluarse el cuadro clínico cuidadosamente.

Acknowledgment

I want to thank Drs. Norman Maldonado and M. R. García-Palmieri for reviewing the manuscript and for helpful suggestions.

References

1. *Selye, H.:* Experimental thrombohemorrhagic phenomena. Amer. J. Cardiol. 20: 153, 1967.
2. *Rodriguez-Erdmann, F.:* Bleeding due to increased intravascular blood coagulation. New Eng. J. Med. 273: 1370, 1965.
3. *Hardaway, Robert M.:* Disseminated intravascular coagulation in experimental and clinical shock. Amer. J. Cardiol. 20: 161, 1967.
4. *Rodriguez-Erdmann, F.:* Production of the generalized Schwartzman reaction with platelet factor 3. Blood 26: 541: 1965.
5. *Margaretten, W.:* Local tissue damage in disseminated intravascular clotting. Amer. J. Cardiol. 20: 185, 1967.
6. *Kasabach, H. H., and Merritt, K. K.:* Capillary hemangioma with extensive purpura. Amer. J. Dis. Child. 59: 1063, 1940.
7. *Lee, L., et al.:* The role of the reticuloendothelial system in intravascular coagulation. Throm. et. Diath. Haem., Suppl. 20: 87, 1966.
8. *Blix, S. and Jacobsen, C. D.:* Intravascular coagulation, a possible accelerating effect of prednisone. Acta Med. Scand. 180: 723, 1966.
9. *Corrigan, James J., et al.:* Changes in the blood coagulation system associated with septicemia. New Eng. J. Med. 279: 851, 1968.
10. Editorial: Consumption coagulopathy in septicemic shock. New Eng. J. Med. 279: 884, 1968.
11. *Lasch, H. G., et al.:* Pathophysiology, clinical manifestations and therapy of consumption-coagulopathy. Amer. J. Cardiol. 20: 381, 1967.
12. *Ilfort, P. F.:* Continuous hemostasis and continuous intravascular clotting: Fact or Myth? Throm. et. Diath. Haem., Suppl. 20: 18, 1966.
13. *Kwaan, H. C., et al.:* Plasma fibrinolytic activity induced by ischemia. Clin. Sci. 15: 245, 1956.
14. *Selye, H.:* Thrombohemorrhagic Phenomena, Charles C. Thomas Publisher, Springfield, 1966.
15. *Pechet, L.:* Fibrinolysis. New Eng. J. Med. 273: 966, and 1024, 1965.
16. Editorial: Fibrinogen split products, New Eng. J. Med. 278: 793, 1968.
17. *McKay, D. G.:* Disseminated Intravascular Coagulation: An Intermediary Mechanism of Disease. P. H. Hoeber, New York, 1964.
18. *Porter, G.:* Fibrinolysis: an unusual cause of bleeding. Med. Clin. N. Amer. 51: 1061, 1967.
19. *Phillips, L. L.:* Alterations in the blood clotting system in disseminated intravascular coagulation. New Eng. J. Med. 20: 174, 1967.
20. *Rubenberg, M. L., et al.:* Intravascular coagulation in a case of Clostridium perfingens septicemia: treatment by exchange transfusions and heparin. Brit. Med. J. 4: 271, Nov. 1967.
21. *Finegold, M. J.:* Pathogenesis of plague, Amer. J. Med. 45: 549, 1968.
22. *McGehee, W. G., et al.:* Intravascular coagulation in fulminant meningococcemia. Ann. Intern. Med. 67: 250, 1967.
23. *Dennis, L. H., et al.:* Consumption coagulopathy in fulminant meningococcemia. J. A. M. A. 205: 183, 1968.
24. Annotations: Haemolytic-uraemic syndrome. Lancet II: 271, 1968.
25. *Wehinger, H., et al.:* Haemolytic-uraemic syndrome. Lancet II: 1085, 1968.
26. *Kwaan, H. C. et al.:* The nature of the vascular lesion in thrombotic thrombocytopenic purpura. Ann. Intern. Med. Abstracts 68: 1169, 1968.
27. *Lerner, R. G., et al.:* Thrombotic thrombocytopenic purpura: relation to the generalized Shwartzman reaction. Ann. Intern. Med. 66: 1180, 1967.
28. *Hnat, R. F., et al.:* Diffuse intravascular coagulation associated with a degenerating myoma during pregnancy. Obstet. Gynec. 29: 207, 1967.
29. *Edson, J. R., et al.:* Intravascular coagulation in acute stem cell leukemia successfully treated with heparin. Pediatries 71: 342, 1967.
30. *McKay, D. G., et al.:* Pulmonary embolism and disseminated intravascular coagulation. Amer. J. Cardiol. 20: 374, 1967.
31. Case Records of the Massachusetts General Hospital: New Eng. J. Med. 277: 1254, 1967.
32. *Stark, C. R., et al.:* Intravascular coagulation and hyaline membrane disease of the newborn, Lancet I: 1180, 1968.
33. *Reid, H. A., et al.:* The paradox of therapeutic defibrination. Lancet I: 485, 1968.
34. *Mosesson, M. W., et al.:* Chronic intravascular coagulation syndrome. New Eng. J. Med. 278: 815, 1968.
35. *Thomas, D. P., et al.:* Platelet aggregation in patients with Laennec's cirrhosis of the liver, New Eng. J. Med. 276: 1344, 1967.
36. Editorial: Hemorrhagic tendency in liver disease. New Eng. J. Med. 276: 1378, 1967.
37. *Weber, M. B.:* The neurological complications of consumption coagulopathies. Neurology 18: 185, 1968.
38. *Miller, S.:* Textbook of Clinical Pathology. Williams and Wilkins Co., Baltimore, 1966.
39. *Didisheim, P.:* Screening tests for bleeding disorders. Amer. J. Clin. Path. 47: 622, 1967.
40. *Winthrobe, M.:* Clinical Hematology-Sixth Ed. Lea and Febiger, Philadelphia, 1967, p. 321.
41. *Breen, F. A., et al.:* Ethanol Gelation: A rapid screening test for intravascular coagulation. Ann. Intern. Med. 69: 1197, 1968.
42. *Kwaan, H. C.:* Personal communication (as per lectures).
43. *McKay, D. G., et al.:* Therapeutic implications of disseminated intravascular coagulation. Amer. J. Cardiol. 20: 392, 1967.
44. Editorial: Heparin treatment in intravascular clotting. New Eng. J. Med. 276: 1324, 1967.

EDITORIALES

EL MEDICO Y LOS ACCIDENTES AUTOMOVILISTICOS

Lejos estamos de las consideraciones poéticas del "camino" o la "carretera que en cada montaña dá vueltas a un nudo". Hoy es más y más vía de Transportación. La idílica noción del paseo en automóvil se sustituye por el cansón viaje más y más lleno de peligro. Los imprevistos se sustituyen por las señales de Tránsito que deben ser obedecidas tácitamente. La experiencia del automovilista, del tapón, y del choque aparatoso va haciendo lentamente del más arrojado improvisador un estudioso de la precaución.

Como médicos nuestro quehacer es casi por definición con la salud y la vida. La muerte es contacto inesperado que siempre se intenta evitar. Cuando es la muerte en estadísticas como la muerte fulminante, accidental, en que no sucede como proceso bajo nuestra dirección sino que nos sorprende como resultado nefasto, nuestro bregar es más con los sucedáneos. Nuestra reacción es por ende menos intensa y manifiesta. Este quehacer es casi extraño a la medicina y miramos de reojo a los pocos médicos que la cultivan. Otras disciplinas hacen acopio de datos, tablas estadísticas e interpretaciones. Las muertes criminales o las de accidente de la cosa natural con menor artefacto del hombre, nos ocupan con más intensidad. Cuando es la muerte por la máquina, que es construcción y responsabilidad del hombre, nuestra indiferencia es casi criminal. La clase médica la estudia poco y se preocupa menos por este fenómeno de la urbanidad. Es cierto quizás que algunos de los problemáticos y soluciones que se plantean incluyen ingerencias en campos ajenos – diseño, construcción y seguridad de las vías, de los vehículos en sí, protección máxima al peatón, densidades poblacionales con velocidades máximas permitidas, densidades de tipos de vehículos en comparación con áreas de carreteras fabricadas, etc. etc. Sin embargo cabe apuntar que otros menesteres – acueductos, alcantarillados, químicos y fármacos, control de plagas, etc., son capítulo brillante de la medicina moderna.

Cuando al hombre con la máquina, se le añade el fármaco (alcohol) la responsabilidad médica es ineludible. Lo que aparece accidente evitable o no, es muchas veces intento ligeramente equívoco. La coincidencia de consumo de alcohol y de accidente automovilístico es apabullante. Aún nos falta saber de la influencia directa e indirecta o del uso de otros fármacos en los accidentes. Es de notar otra coincidencia estadística notable. Las cifras de accidentes automovilísticos y de suicidios parece que avanzan cogidos de la mano y algunos accidentes pueden verse per-se como intentos suicidas no muy disfrazados. Como es obvio este tipo de intento suicida por sus características particulares amalgama coincidentalmente el aspecto homicida, del "hacer" desconocido. La tibieza del interés médico en esta causa de muerte de crecimientos alarmantes pueden también apuntalarse en el hecho de que aquí el médico es al mismo tiempo facultativo y paciente. Se es paciente, las más de las veces no muy paciente, de la carretera todas las mañanas en camino al trabajo y todas las veces en camino a la diversión, entretenimiento o función social. ¿Quién pasa hoy toda una vida sin un accidente de automóvil pequeño o grande? ¿Quién pasa 24 horas sin la realidad mental de lo que pudo haber pasado? ¿Quién no sufre por lo menos una vez al día a ese director exógeno de nuestra adrenalina y jugos gástricos que es el semáforo cuando presionados por el tiempo, la distancia, la velocidad y la emergencia real o imaginada tenemos que súbitamente depender del

pie del freno y del reflejo para todo? Esta posición dual de ser médico y paciente a la vez es, muy constantemente incómoda y a veces "apatetiza".....

J. Bernal y del Río, MD

PROTECCION DE LA SALUD EN UN MUNDO QUE SE ACHICA

El conferenciante de la "Charles Franklin Craig Lecture" para el año 1968 en la reunión anual de la Asociación Americana de Medicina Tropical e Higiene fue el doctor David J. Sencer (1), director del "National Communicable Disease Center, Atlanta, Georgia. Entre otras cosas, decía el doctor:

"Con los medios de transportación modernos, con la dispersión de las gentes, tales como militares, Cuerpos de Paz, técnicos y turistas, los arcaicos procedimientos de cuarentena empleados por el "Public Health Service" ya no pueden aplicarse con efectividad. No contamos con un solo procedimiento que pueda proteger nuestra nación, o cualquier otro país, contra la importación de ciertas enfermedades infecciosas. Los nuevos métodos a emplearse habrán de ser determinados por la naturaleza de y por los conocimientos existentes para controlar la enfermedad de la cual deseamos protegernos. Esto requiere estricta vigilancia en las fronteras de la nación, vigilancia en el interior del país, y vigilancia global, o sea en todo el mundo. Se incluirán además, programas de control y de erradicación de aquellas enfermedades que constituyan una amenaza para los Estados Unidos y para otros países. Tales actividades de saneamiento se llevarán a cabo por el país que desea protegerse, así como también por aquellos países en los que las enfermedades aún existan. El ataque será al nivel de una organización internacional, y deberá practicarse con métodos científicos y no por técnicas tradicionales.

En los últimos dos años y medio se han efectuado cambios drásticos en los procedimientos de cuarentena en los Estados Unidos. Presenta como ejemplo la práctica de la vacunación contra la viruela. Durante muchos años los viajeros que llegaban a los Estados Unidos portadores de certificados de vacuna no válidos eran vacunados en el puerto de entrada al país, no importa de donde venían. Ahora, los inspectores de cuarentena preguntan "¿de dónde viene usted?", lo que el doctor Sencer califica de un ejemplo de la práctica de buena medicina tropical. Si el viajero ha llegado de un país en el que no se encuentra la viruela y presenta un certificado no válido, se le recomienda que vea a un médico, o a su departamento de salud para ser vacunado. Solamente en el caso que el viajero venga de áreas en las que prevalece la viruela será vacunado en el puerto de entrada.

La profesión médica de todo país deberá estar alerta para diagnosticar con prontitud aquellas enfermedades que puedan ser importadas del exterior. Por desgracia no ha sido así, y se menciona el caso de un soldado que permaneció 11 días en un hospital de Dallas atacado de peste bubónica en espera del diagnóstico de la enfermedad. Y el soldado del cuerpo de aviación que falleció de malaria en otro hospital en California. Estos casos son prueba de que los médicos no pensaron en estas enfermedades al enfrentarse con ellas.

Concluye el doctor su conferencia con el planteamiento de la fiebre amarilla como amenaza constante en aquellos países en los que aún existe el mosquito **Aedes aegypti,** *agente transmisor no solamente de esta enfermedad sino también del dengue y de la fiebre hemorrágica Asiática. Con la transportación aérea entre países que aún no han exterminado este mosquito, y aquellos*

en que prevalece el agente portador, no será difícil la importación de mosquitos infectados, y por ende la importación de la enfermedad.

En el presente el control de la fiebre amarilla en el hemisferio occidental consiste principalmente en la erradicación del mosquito **Aedes aegypti.**

El diagnóstico de la fiebre amarilla deberá estar presente en la mente de la clase médica en todo momento, ya que este mal, por desgracia, frecuentemente al comenzar en forma epidémica, no se manifiesta por aquellos síntomas y signos clínicos discutidos en libros de texto. Mucho más frecuente se presenta como una fiebre de origen desconocido. Los casos graves han sido diagnosticados como fiebre tifoidea, malaria, leptoespirosis, hepatitis infecciosa y obstrucción biliar. Algunos casos de muerte no han sido diagnosticados por los clínicos y aún por los patólogos. Informa el doctor Wilbur G. Downs (2), virólogo de la Universidad de Yale, que en su experiencia, cuatro casos de fiebre amarilla hospitalizados murieron consecutivamente, sin haberse mencionado la posibilidad de fiebre amarilla, a pesar de que los médicos de la localidad habían sido informados de la presencia de la enfermedad en ese lugar tan solo unas pocas semanas antes de ocurrir las muertes. Esperamos que nuestra clase médica no actuará de esa manera en la eventualidad de que alguna vez tengamos que enfrentarnos a la fiebre amarilla en nuestro país.

Rafael Rodríguez-Molina, MD, FACP
Med. Sc. D. (Int. Medicine)

References

1. Health protection in a shrinking world. David J. Sencer. Amer. J. Trop. Med. Hyg., 18: 341-45, May 1969.
2. Letters to the Editor. Wilbur G. Downs. Informado en la revista arriba indicada, página 482.

CARTA

El Boletín acepta para publicación cartas al Editor sobre temas de interés para los lectores. Al igual que todo otro material, éstas deberán ser de un largo razonable (no más de 2 páginas a maquinilla) y estarán sujetas a aprobación por la Junta Editora.

Association Police and Fire Surgeons

To the Editor: At the suggestion of Dr. Talbot of the American Medical Association, I wish to apprise you of the formation of an ad-hoc committee whose purpose is to establish a national society of Police and Fire surgeons. I am enclosing a list of the members of the members of the committee which will be instrumental in the formation of the organization.

Dr. Talbott has suggested that I ask the cooperation of the state and county societies in an effort to give this enterprise more publicity. Such publicity is needed to gain the interest of police and fire surgeons in this new society and to request their correspondence in regard to becoming participating members of same. Your help in enabling us to transmit this information via your journals would be most appreciated and would serve to expedite the formation of this much-desired group.

Howard Schneider, MD
National Association Police and Fire Surgeons
75 Lee Avenue (at Mclean) Yonkers, N. Y. 10705

XI CONGRESO PANAMERICANO DE GASTROENTEROLOGIA

HOTEL P. R. SHERATON

Octubre 26 a Noviembre 1, 1969

Evolution of Medical Service Plans

The clinical environment for learning conducted in the Oslerian tradition at the bedside or in the clinic requires the delivery of professional services as an essential ingredient. Historically, the delivery of such health services was to indigent persons, and the costs were absorbed by institutional or charitable sources, or by income generated from private paying patients. Modern health care systems are rapidly eliminating medical indigency. Professional services have value for which payment should be available regardless of the context in which the service is delivered.

The question of control, self-regulation and management of the activities of faculty in generating income without compromising major educational objectives of the institution is the stimulus for the evolution of increasing numbers of medical service plans. While some plans have been in existence for many years, the majority are of recent origin, and many of the older plans are themselves undergoing revision.

Two kinds of arrangements are in effect: 1) the clinical faculty is organized in a group practice or federation of group practices; 2) the clinical faculty accept appointments on restricted practice plans known as "geographic full-time" positions. In either case, these physicians spend the major portion of their time in the teaching center and devote some of their time to private medical practice. Of the schools reporting in the 1968-1969 salary survey conducted by the Association of American Medical Colleges, sixty-eight have medical service plans. Of these, thirty-six have geographic full-time arrangements. Table 1 outlines the various regulations of private practice which were reported. Eleven schools limit the private practice income of geographic full-time faculty to a percentage of their annual base salary. One limits the amount of earnings from private practice to a maximum number of dollars per year. Seven others place a limit on the amount of total annual professional income (salary plus patient fees).

Table 2 presents tabulations of the percentage and

TABLE I: Private Practice Income and Time Arrangements for Geographic Full-Time Faculty

Type of Arrangement	Number of Schools
1. Private practice income limited to a percentage of annual base salary	11
2. Private practice annual income limited to a maximum dollar amount	1
3. Total professional annual income limited to a maximum dollar amount	7
4. Amount of time devoted to private practice is limited	13
5. Combination of arrangements 1-4	4
6. Not classifiable, description inadequate	26
Total schools with regulated private practice arrangements	62
Schools reporting no limitations on time or income	6
Total schools with medical service plans	68
Schools not reporting existence of private practice arrangements	21
Total Schools	89

TABLE II: Income Regulation

Private Practice Income Regulation *				Total Professional Income Regulation *	
Percentage of Annual Base Salary		*Annual Maximum Income*		*Annual Maximum Income*	
Percentage	*No. of Regulations*	*Dollars*	*No. of Regulations*	*Dollars*	*No. of Regulations*
0 - 25	1	Under 5,000	–	Under 20,000	3
26 - 50	6	6,000 - 10,000	2	21,000 - 25,000	6
51 - 75	2	11,000 - 15,000	3	26,000 - 30,000	10
76 - 100	7	No Limit	18	31,000 - 35,000	7
101 and Over	2			36,000 - 40,000	9
				41,000 and over	6
				No Limit	1
Total Regulations	18	Total Regulations	23	Total Regulations	42
Median Percentage	75 percent	Median Income	No Limit	Median Income	$31,500

** A school may have more than one regulation.*

dollar limitations placed on private practice and total professional income. In some schools, faculty rank determines the amount of earnings from private practice. Limitations on income from patient fees ranged from 0 to 150 percent of annual base salary or to a maximum of $15,000 per year. Total professional income limitations ranged from $17,000 to $51,000 with a medium income of $31,500. In the schools which limit total income, each faculty rank has its own maximum earning level.

Eighteen schools do not place any limitation on private practice income. However, eleven of these do limit the amount of time a faculty member can devote to private practice. The net effect of limiting time is to limit earnings. Six schools report no limitations on time or income.

Generally, income from professional earnings is distributed in one of two ways. The earnings are paid into a common fund from which salaries are paid as are other basic operating expenses or the faculty member may receive the income directly. Income generated by clinical faculty to offset operating expenses has doubled since 1959.

———

Reproduced from Datagrams, Association of American Medical Colleges, Vol. 10, No. 11, May 1969.

Artificial Placentation

Prolonged, total respiratory support of isolated non-breathing lamb fetuses for periods exceeding two days (up to 55 hours) has been achieved by scientists in the National Heart Institute's Laboratory of Technical Development, with an "artificial placenta" system of their own design. Development and use of the artificial placentation system, which features a new type of artificial lung (blood oxygenator), to support premature fetal lambs was reported by Warren M. Zapol, M. D., Theodor Kolobow, M. D., Robert L. Bowman, M. D., and Joseph E. Pierce, D. V. M., to the annual meeting of the Society for Pediatric Research in Atlantic City, May 2, 1969.

The system will facilitate studies of fetal physiology and pharmacology. Its success also augurs well for clinical trials (now underway at Children's Hospital, Washington, D. C.) of the blood oxygenator to support newborn human infants during such crises as respiratory distress syndrome due to hyaline membrane disease. Hyaline membrane disease kills 25,000 newborn infants each year in the U. S. In fact, fetal lambs of from 100-140 days gestation (147 days is the normal term) were chosen for these studies because they weigh about the same as human fetuses of comparable age.

A key component of the artificial placentation system is an artificial lung, the spiral coil membrane blood oxygenator, developed here by Dr. Theodor Kolobow. Dow Corning Corporation has since supplied oxygenators for these studies, and will soon market

the devices. Late last year, the NHI scientists reported successful continuous use of spiral coil oxygenators for periods of up to 4 days as arteriovenous shunts (without a blood pump) in newborn lambs. Previous to these studies, prolonged blood-oxygenation with an artificial lung had been limited to 12 hours duration in newborn laboratory animals, and had often been accompanied by severe damage to lungs and blood components.

The pint-sized lung contains a thin (5 mil.) silicone rubber membrane supported by nylon knit and formed into a flat tube or envelope about 7 feet long. This envelope is wound about a central spool and fitted with oxygen inlet and outlet ports. Blood enters one end of the lung's cylindrical housing, flows between layers of the spirally-wound silicone envelope and, still flowing parallel to the cylinder's axis, exits at the other end. As in other membrane lungs, blood oxygen and carbon dioxide exchange occurs by diffusion across a membrane. However, unlike most membrane lungs, the spiral coil lung is suction-actuated, i. e., oxygen is sucked through the lung by the intermittent application of a slight vacuum to the oxygen outlet port. This lung also differs from others in that it has a fixed priming volume and very low resistance to bloodflow.

The new lung owes most of its safety advantages as well as its high oxygenating efficiency to this gentle, cyclic application of negative pressure, as this prevents oxygen bubbles from entering the blood (gas emboli) if pin hole leaks occur in the membrane, and the pulsatile motion imparted to the membrane greatly increases blood oxygenation by eliminating the "stagnant" boundary layer of oxygen-saturated blood immediately adjacent to the membrane. Thus, more blood is brought into contact with the membrane where oxygenation occurs.

In addition to the membrane lung, the artificial placentation system also includes: 1) a temperature-controlled synthetic amniotic fluid bath in which the fetus is submerged following its removal by Caesarian section from the ewe; 2) specially designed, stainless steel spring-supported, non-kinking, segmented polyurethane (Lycra, Dupont) cannulas developed in this laboratory for joining the umbilical arteries and vein to the blood tubes of the system (these thin-walled, 10 mil. cannulas offer minimal resistance to flow, yet are strong enough to be passed all the way into the aorta and to withstand constriction of umbilical vessels); 3) a Sarns roller pump specially modified to "milk" blood forward gently in a large-bore tube at low RPM's so as to minimize damage to blood cells and other components, and; 4) equipment for the continuous infusion of glucose, amino acids, vitamins and heparin into the system. Another innovation in the apparatus is an equilibration chamber whose collapse prevents the development of excessive suction in the blood line from the fetus by activating a pump cut-off switch. The absence of a blood-gas interface anywhere in the system further minimizes damage to fragile blood components.

Using this system, the NHI scientists maintained 29 premature fetal lambs, several for prolonged periods, (up to 55 hours) in a metabolically stable state and with minimal trauma to the fetus. Over half of the perfusions in the most recent series of 8 fetuses have exceeded 20 hours in duration.

Normal physiologic parameters, such as blood gases, arterial pressures, and blood pH, were usually maintained during perfusion without adding buffers. An observed fall in hemoglobin was consistent with blood losses due to blood sampling (which were replaced with lactated Ringers solution) for study. Blood creatinine levels fell from an initial level of 2.5 mgm. percent to about 0.5 mgm. percent, and blood electrolyte levels stabilized, indicating that the fetus' own kidneys were assuming renal functions normally performed by the living placenta during fetal life.

With the attainment of a practical method of long-term extracorporeal fetal perfusion, as demonstrated in the currently reported studies, the NHI experiments are now focusing on fetal resuscitation and long-term survival following artificial placentation. The first such attempt, after 4 hours of total perfusion in a 125 day-gestation fetus, has been successful.

———

From the U. S. Department of Health, Education, and Welfare, National Institutes of Health, Bethesda, Maryland, May 28, 1969.

NOTICIAS

Locales

A continuación informamos las siguientes actividades reportadas para los meses de julio, agosto y septiembre:

Julio

23 Reunión Directiva Cooperativa Asociación Médica - AMPR - *8:00 p.m.*
24 Reunión Junta Directiva Academia Medicina General - AMPR - *8:00 p.m.*
30 Reunión Junta Auxilio Médico Mutuo - AMPR - *6:00 p.m.*
31 Reunión Junta de Directores Asociación Médica - AMPR- *6:00 p.m.*
31 Reunión Consejo Judicial y Administrativo - AMPR - *8:00 p.m.*

Agosto

1 Reunión Junta Editora - Boletín - AMPR - *5:00 p.m.*
5 Reunión Comité Relaciones Públicas Distrito Este - AMPR - *8:00 p.m.*
5 Reunión Consejo Política Pública - AMPR - *8:00 p.m.*
6 Reunión Sociedad Médica Distrito Este - AMPR - *7:30 p.m.*
6 Reunión Sección ENT - AMPR - *7:30 p.m.*
12 Reunión Consejo Científico - AMPR - *6:00 p.m.*
12 Reunión Consejo Relaciones Públicas - AMPR - *8:00 p. m.*
12 Reunión Asociación Asistentes Médicos - AMPR - *8:00*
13 Reunión Consejo Servicios Médicos - AMPR - *8:00 p.m.*
13 Vistas Públicas Ley 22 - Hotel La Palma Mayaguez - *8:00 p.m.*
14 Curso Postgraduado Sección Pediatría Conferencia Dr. Ernesto Plata Rueda - AMPR - *8:00 p.m.*
15 Curso Postgraduado Sección Pediatría Conferencia Dr. Ernesto Plata Rueda - AMPR - *8:00 p.m.*
16 Curso Postgraduado Sección Pediatría - Mesa Redonda - Hotel El Conquistador, Fajardo
20 Vistas Públicas Ley 22 - Casa del Médico Arecibo - *8:00 p.m.*
27 Vistas Públicas Ley 22 - Casa del Médico Ponce - *8:00 p.m.*
28 Reunión Consejo Judicial y Administrativo - AMPR - *8:00 p.m.*
28 Reunión Consejo Salud Pública - AMPR - *8:00 p.m.*
29 Conferencia Asociación Fisioterapia - Capítulo P. R. AMPR

Septiembre

2 Reunión Comité Relaciones Públicas Distrito Este - AMPR - *8:00 p.m.*
3 Reunión Distrito Este - AMPR - *7:30 p.m.*
3 Reunión Sección ENT - AMPR - *7:30 p.m.*
3 Vistas Públicas Ley 22 - AMPR - *8:00 p. m.*

Internacionales

September

1-5 International College of Surgeons (U. S. Section) - Montreal
1-5 International Society for Neurochemistry - Milan, Italy
6-13 International Union for Health Education - Buenos Aires
11-13 Society of Internal Medicine - Bucharest, Rumania
20-25 International Society of Surgery - Buenos Aires
20-27 International Cardiovascular Society, Congress- Buenos Aires
22-27 International Congress on Occupational Health- Tokyo
30-Oct. 4 International Congress on Rural Medicine - Usuda, Japan

October

1-4 International Conference for Suicide Prevention - London
6-10 International Society of Orthopedic Surgery and Traumatology - Mexico City
6-11 International Congress of Radiology - Tokyo
6-11 International Congress of Rheumatology - Prague
9-14 World Federation of Societies of Anaesthesiologists - La Paz, Bolivia

November

20-27 Latin American Congress of Pathology - Buenos Aires

December

7-13 VI Congreso Sudamericano y II Congreso Uruguayo de Cardiología. Punta del Este, Uruguay

AMERICAN COLLEGE OF PHYSICIANS POSTGRADUATE COURSES, 1969-1970

Sept. 1969 - Medical Oncology, University of Minnesota Medical School, Minneapolis, Minn.
Oct. 1-4, 1969- Vascular Disease, Mayo Graduate School of Medicine (University of Minnesota) and Mayo Clinic, Rochester, Minn.
Oct.20-24,1969- Office Psychiatry for Internists, The Faulknet Hospital, Boston, Mass.
Nov. 3-7, 1969- Mechanisms of Disease, University of Chicago Chicago, Ill.
Nov. 3-7, 1969- Nuclear Medicine: Diagnosis and Treatment of Disease with Radionuclides given Interally, University of Michigan Medical Center, Ann Arbor, Mich.

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el numero de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), e iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas medicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

Se alquila local segundo piso, para médicos - Más de 1,000 pies cuadrados - piso terrazo - tres cuartos - dos baños; luz, agua y parking incluídos. A varios minutos del Hospital del Maestro. Centro Médico y Auxilio Mutuo. Para más información, llamar al Dr. Cuevas, teléfonos 767-1004 o 764-2226.

Se alquila local para dispensario médico - Tiene tres oficinas - Teléfono - Ave. Comercial Lomas Verdes. Para más información llamar al teléfono 767-5095.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pila Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras Están semiequipadas. Sitio céntrico próximo a las calle principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas Apartado 20267, Río Piedras, P. R., Teléfono 766-7398

WANTED

Internist, Board certified or eligible to work in a prosperous, growing area in South Texas. Will share modern medical building with Lab. and X-Ray facilities. Please contact Víctor Malagón, MD, FACP, FACC, 802 So. Main St., McAllen, Texas.

Otro nuevo descubrimiento de Lakeside



cuando la depresión abruma

NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardíacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extraoiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.

When it's more than a bad cold



your patient can feel better while he's getting better

Achrocidin®

Tetracycline HCl—Antihistamine—Analgesic Compound

Each tablet contains: ACHROMYCIN® Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Caffeine 30 mg.; Salicylamide 150 mg.; Chlorothen citrate 25 mg.

In tetracycline-sensitive bacterial infection complicating respiratory allergy, ACHROCIDIN brings the treatment together in a single prescription—prompt relief of headache and congestion together with effective control of the organisms frequently responsible for complications leading to prolonged disability in the susceptible patient.

For children and elderly patients you may prefer caffeine-free ACHROCIDIN Syrup. Each 5 cc contains: ACHROMYCIN (Tetracycline) equivalent to Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Salicylamide 150 mg.; Ascorbic Acid (C) 25 mg.; Pyrilamine Maleate 15 mg.

Contraindications: Hypersensitivity to any component.

Warning: In renal impairment, since liver toxicity is possible, lower doses are indicated; during prolonged therapy consider serum level determinations. Photodynamic reaction to sunlight may occur in hypersensitive persons. Photosensitive individuals should avoid exposure; discontinue treatment if skin discomfort occurs.

Precautions: Drowsiness, anorexia, slight gastric distress can occur. In excessive drowsiness, consider longer dosage intervals. Persons on full dosage should not operate vehicles. Nonsusceptible organisms may overgrow; treat superinfection appropriately. Treat beta-hemolytic streptococcal infections at least 10 days to help prevent rheumatic fever or acute glomerulonephritis. Tetracycline may form a stable calcium complex in bone-forming tissue and may cause dental staining during tooth development (last half of pregnancy, neonatal period, infancy, early childhood).

Adverse Reactions: *Gastrointestinal*—anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. *Skin*—maculopapular and erythematous rashes; exfoliative dermatitis; photosensitivity; onycholysis, nail discoloration. *Kidney*—dose-related rise in BUN. *Hypersensitivity* reactions—urticaria, angioneurotic edema, anaphylaxis. *Intracranial*—bulging fontanels in young infants. *Teeth*—yellow-brown staining; enamel hypoplasia. *Blood*—anemia, thrombocytopenic purpura, neutropenia, eosinophilia. *Liver*—cholestasis at high dosage.

Upon adverse reaction, stop medication and treat appropriately.

Lederle

348-B

Dulcolax®...so predictable you can almost set patients by it.

Dulcolax works so effectively that the time of bowel evacuation can often be predicted.

Dulcolax tablets taken at night will usually result in a convenient bowel movement the following morning. Dulcolax suppositories generally work within 15 minutes to an hour.

Dulcolax may be given to the aged, pregnant or nursing women, and children. It may be particularly helpful in conditions in which straining should be avoided. The drug, however, is contraindicated in the acute surgical abdomen.

Dulcolax® bisacodyl





Clues to PVD The geriatric smoker

In studies on peripheral vascular disease—a common by-product of the degenerative aging process—considerable attention has focused on the important role of smoking in the progression of the disease. Although it may not be etiologic, smoking is widely recognized as a prominent contributing factor.[1]

Skin blood flow—significant factor in PVD. Cutaneous digital vasoconstriction caused by nicotine has been observed both in normal subjects and in patients with peripheral vascular disorders.[1,2] Among patients with peripheral vascular disease, however, age and the severity of the disease appear to modify the effects of nicotine. For example, in a study of older patients with *marked* peripheral vascular disease,[3] changes induced by smoking were not statistically significant for the group as a whole. This was explained on the basis of decreased skin reactivity. *Smoking is not permissible in any stage of the disease,* since even "... minimal reduction in blood flow in patients with ischemic limbs may produce a further reduction in tissue nutrition, and thus may be another case of the proverbial straw on the camel's back."[3]

In another study of patients with peripheral vascular disease,[4] the investigators stress that decreased skin blood flow during smoking "... is the factor of most importance to the patient with peripheral vascular disease." *While such patients may adjust to the discomfort of vascular insufficiency in skeletal muscle, decreased skin blood flow may often lead to severe symptomatology.*

More and more physicians have adopted the practice of investigating for peripheral vascular disorder when confronted with a geriatric patient who is a habitual smoker. Once a diagnosis is established, therapeutic measures are directed toward increasing the peripheral circulation and appropriate management of the patient's general medical needs. These include the important safeguards of keeping warm and refraining from smoking.

Professional model posed for illustration.

Important in
total management of
peripheral vascular disease,
vascular spasm or
chilblains

Roniacol® Timespan®

(nicotinyl alcohol tartrate)

for relief of ischemic symptoms

nvenience of b.i.d. dosage—sustained-release Timespan Tablets usually provide
olonged relief of ischemic symptoms with two doses daily.
noothness of onset—the action of Roniacol (nicotinyl alcohol) is smooth and gradual
onset, rarely causing severe flushing.
lectivity of action—relaxes the musculature of peripheral blood vessels.
igh degree of safety—side effects seldom require discontinuation of therapy.

fore prescribing, please consult complete product information, a summary of which follows:
dications: Conditions associated with deficient circulation; *e.g.*, peripheral vascular disease, vascular spasm,
icose ulcers, decubital ulcers, chilblains, Meniere's syndrome and vertigo.
ution: Roche Laboratories endorses caution in the administration of any therapeutic agent to pregnant patients.
le Effects: Transient flushing, gastric disturbances, minor skin rashes and allergies may occur in some patients,
dom requiring discontinuation of the drug.
sage: 1 or 2 Timespan Tablets morning and night.
w Supplied: Timespan Tablets—150 mg nicotinyl alcohol in the form of the tartrate salt, bottles of 50.

ferences: (1) Roth, G. M.; Shick, R. M., and Secrest, R. R., in James, G., and Rosenthal, T.,
.: *Tobacco and Health*, Springfield, Ill., Charles C Thomas, 1962, pp. 311-322. (2) Entmacher, P. S.:
c. Med. Sect. Amer. Life Convention *51*:149, 1963. (3) Freund, J., and Ward, C.: Ann. New York Acad.
80:85, 1960. (4) Coffman, J. D., and Jayett, S. J.: Circulation *28*:932, 1963.

ROCHE
Roche LABORATORIES
Division of Hoffmann-La Roche Inc.



"All Registered Nurses are Alike"

It stands to reason. They all go through the same training; they all have to pass the same tests; they all have to measure up to the same standards. Therefore, all registered nurses are alike.

That's nonsense, of course. But it's no more nonsensical than what some people say about aspirin. Namely: since all aspirin is at least supposed to come up to certain required standards, then all aspirin tablets must be alike.

Bayer's standards are far more demanding. In fact, there are at least *nine specific differences* involving purity, potency and speed of tablet disintegration. These Bayer® standards result in significant product benefits including gentleness to the stomach, and product stability that enables Bayer tablets to *stay* strong and gentle until they are taken.

So next time you hear someone say that all aspirin tablets are alike, you can say, with confidence, that it just isn't so.

You might also say that all registered nurses aren't alike, either.





There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

Member of the National Association of Blue Shield Plans

But before you prescribe Pertofrane, please see the full prescribing information and especially note Contraindications, Precautions, Warning, Adverse Reactions and Dosage. A brief summary of that information is included here.

Pertofrane® desipramine hydrochloride

Indications: For relief of depression.

Contraindications: Do not use drugs of the M.A.O.I. class with Pertofrane. Hyperpyretic crises or severe convulsive seizures may occur; potentiation of adverse effects can be serious or even fatal. When substituting this drug in patients receiving an M.A.O.I., allow an interval of at least 7 days. Initial dosage in such patients should be low and increases should be gradual and cautiously prescribed.

Warning: Activation of psychosis may occasionally be observed in schizophrenic patients. Do not use in patients under 12 years old, and do not use in women who are or may become pregnant unless the clinical situation warrants the potential risk.

Precautions: Careful supervision and protective measures for potentially suicidal patients are necessary. Discontinuation of therapy or adjunctive use of a sedative or tranquilizer may be necessary in the presence of increased anxiety or agitation, hypomania or manic excitement. However, phenothiazines may aggravate the condition. Atropine-like effects may be more pronounced (e.g. paralytic ileus) in susceptible patients and in those receiving anticholinergic drugs (including antiparkinsonism agents). Carefully observe patients with increased intraocular pressure. Prescribe cautiously in hyperthyroid patients and in those receiving thyroid medications. Cardiovascular complications (myocardial infarction and arrhythmias) are potential risks since they have occasionally occurred with imipramine, the parent compound. Desipramine may block the pharmacologic activity of guanethidine and related adrenergic neuron-blocking agents. Hypotensive episodes have been observed during surgery in patients on desipramine therapy. Before prescribing the drug, the physician should be thoroughly familiar with prescribing information available, with the literature, with all adverse reactions, with the diagnosis and management of depression, and with the relative merits of all measures for treating the condition.

Adverse Reactions: Dry mouth, constipation, disturbed visual accommodation, anorexia, perspiration, insomnia, drowsiness, dizziness, headache, nausea, epigastric distress, and skin rash (including photosensitization) may appear. Since orthostatic hypotension has occurred, carefully observe patients requiring concomitant vasodilating therapy, particularly during the initial phases. Other adverse reactions include tachycardia, changes in EEG patterns, tremor, falling, mild extrapyramidal activity, neuromuscular incoordination, epileptiform seizures. A confusional state (with such symptoms as hallucinations and disorientation) occurs occasionally and may require reduced dosage or discontinuance of therapy. Rarely, transient eosinophilia, slight elevation in transaminase levels, transient jaundice, or liver damage have occurred. If abnormalities occur in liver function tests, discontinue drug and investigate. Occasional hormonal effects, particularly decreased libido or impotence and instances of gynecomastia, galactorrhea and female breast enlargement have been observed. Urinary frequency or retention may occur. The drug should be discontinued if agranulocytosis, bone marrow depression, jaundice, thrombocytopenia, or purpura occur.

Dosage: 25 to 50 mg. t.i.d. The maximum daily dose is 200 mg. Continue maintenance dosage for at least 2 months after obtaining satisfactory response. Generally, elderly and adolescent patients should be given low doses.

Availability: Pink capsules of 25 mg. in bottles of 100 and 1000. (B) 46-530-E

For complete details, please see the prescribing information.

Geigy Pharmaceuticals
Division of Geigy Chemical Corporation
Ardsley, New York 10502

What makes a

A man?
Another woman?
Three kids?
No kids at all?
Wrinkles?
You name it.

Is she truly depressed?

Is that why she lets go in your office?

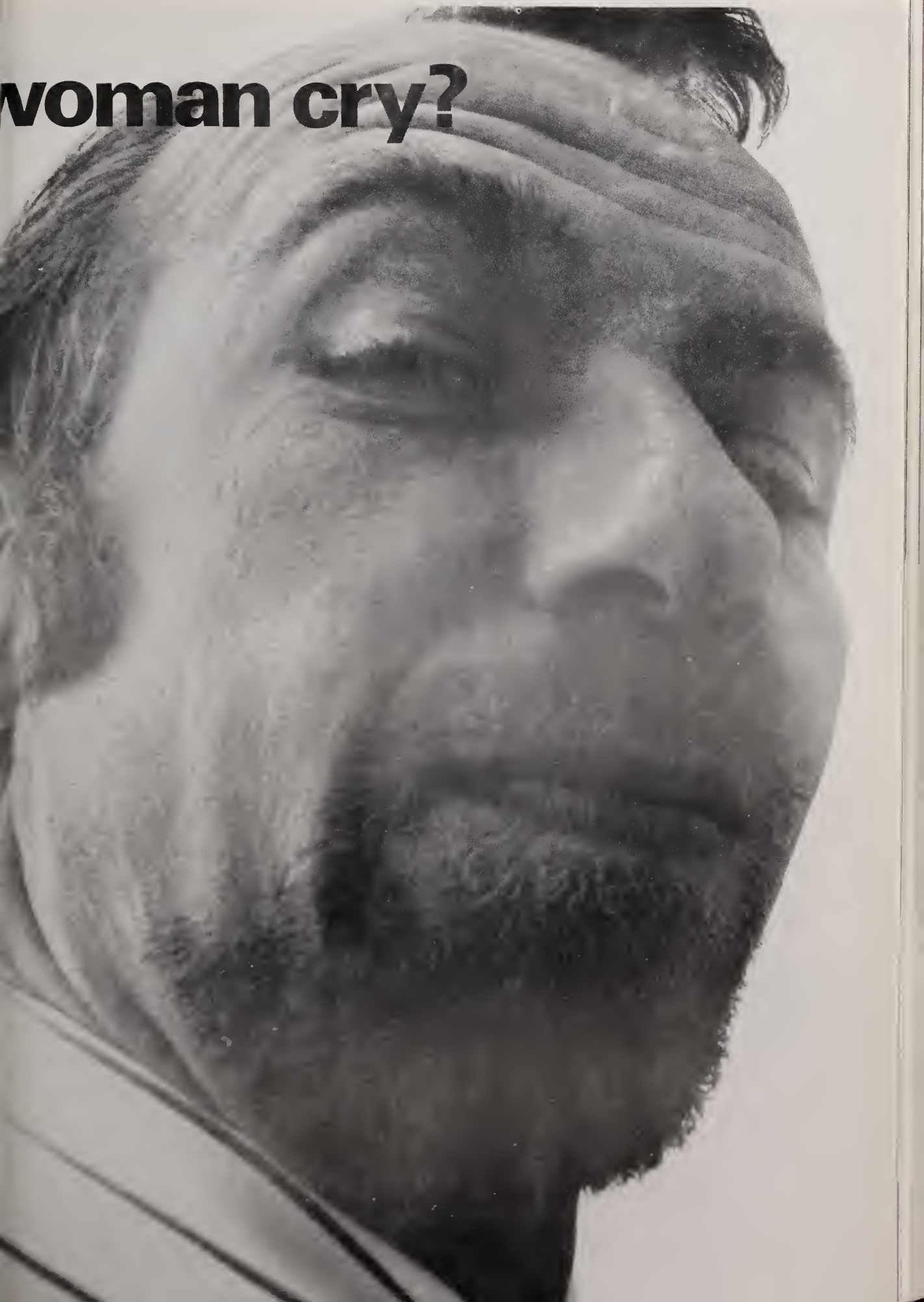
You comfort her.
Talk to her.
And, if she is depressed, consider Pertofrane.
Because
in 3 to 5 days
she can often begin
to cope,
work,
maybe play,
even enjoy.

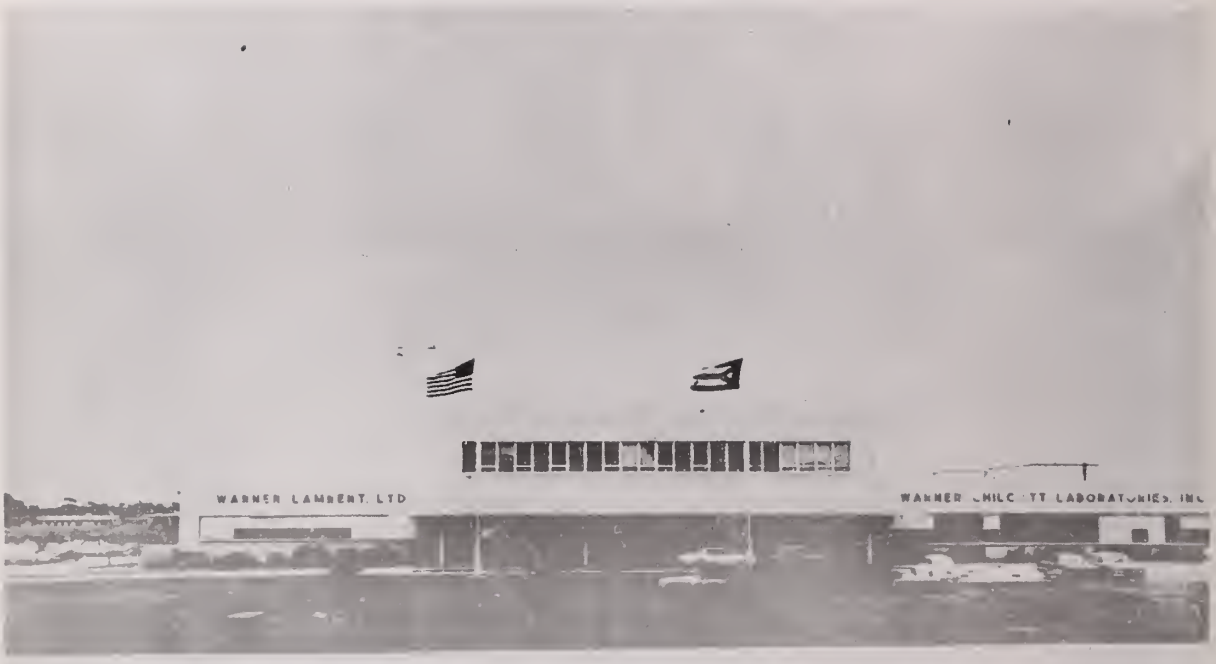
Pertofrane®

desipramine hydrochloride

In depression...
when words are not enough

woman cry?





65th. Infantry Road Km. 13.4, Carolina, P. R. — Tel. 769-3131

WARNER-LAMBERT, Ltd. - Distributor of:

WC WARNER-CHILCOTT

DR DIAGNOSTIC REAGENTS

TPC TEXAS PHARMACAL COMPANY
AN AFFILIATE OF
WARNER-CHILCOTT LABORATORIES



The burdened heart...

fore prescribing, please consult
nplete product information, a
nmary of which follows:

lications: Tension and anxiety
tes; somatic complaints which are
ıcomitants of emotional factors;
/choneurotic states manifested
tension, anxiety, apprehension,
igue, depressive symptoms or
tation; acute agitation, tremor,
irium tremens and hallucinosis
e to acute alcohol withdrawal;
unctively in skeletal muscle
sm due to reflex spasm to local
hology, spasticity caused by
per motor neuron disorders, athe-
is, stiff-man syndrome, convul-
e disorders (not for sole therapy).

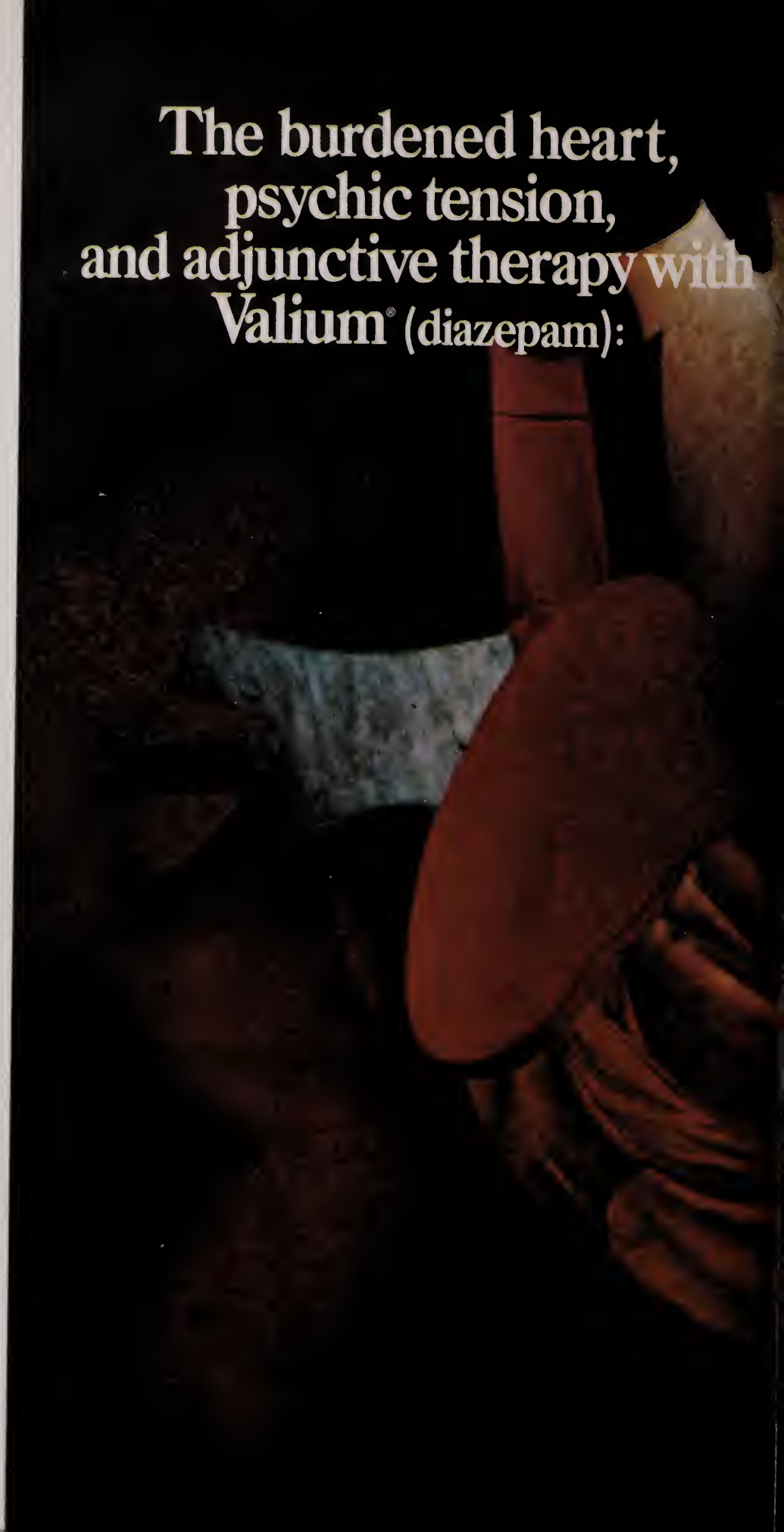
ıtraindicated: Known hypersen-
vity to the drug. Children under
onths of age. Acute narrow angle
ıcoma.

rnings: Not of value in psychotic
ients. Caution against hazardous
upations requiring complete
ıtal alertness. When used ad-
ctively in convulsive disorders,
sibility of increase in frequency
./or severity of grand mal sei-
es may require increased dosage
tandard anticonvulsant medica-
ı; abrupt withdrawal may be
ɔciated with temporary increase
requency and/or severity of
ures. Advise against simulta-
us ingestion of alcohol and other
S depressants. Withdrawal
ıptoms have occurred following
ıpt discontinuance. Keep addic-
-prone individuals under careful
/eillance because of their pre-
ɔosition to habituation and
endence. In pregnancy, lactation
/omen of childbearing age, weigh
ential benefit against possible
ard.

:autions: If combined with other
:hotropics or anticonvulsants,
ider carefully pharmacology of
ıts employed. Usual precautions
cated in patients severely de-
sed, or with latent depression, or
ı suicidal tendencies. Observe
ıl precautions in impaired renal
epatic function. Limit dosage to
llest effective amount in elderly
debilitated to preclude ataxia
versedation.

Effects: Drowsiness, confusion,
ɔpia, hypotension, changes in
lo, nausea, fatigue, depression,
ırthria, jaundice, skin rash,
ia, constipation, headache, in-
inence, changes in salivation,
:ed speech, tremor, vertigo,
ary retention, blurred vision.
ıdoxical reactions such as acute
:rexcited states, anxiety, halluci-
ɔns, increased muscle spasticity,
nnia, rage, sleep disturbances,
ulation, have been reported;
ld these occur, discontinue drug.
ted reports of neutropenia,
dice; periodic blood counts and
function tests advisable during
-term therapy.

The burdened heart, psychic tension, and adjunctive therapy with Valium® (diazepam):



Roche LABORATORIES

a of Hoffmann-La Roche Inc



Artist's conception schematically showing varying ischemic ventricular muscle tissue.

To help lift psychic tension from the already burdened heart

When the cardiac patient shows signs of panic-like reactions following initial diagnosis—a daily regimen of 10-mg Valium (diazepam) tablets *t.i.d.* *q.i.d.* can help control *severe* psychic tension, anxiety, apprehension and agita tion. For *less severe* emotional stress, the 5-mg tablet usually provides the desired calming effect.

When the cardiac patient's outlook impedes convalescence—Valium, as it relieves psychic tension, can help the patient regain a realistic perspective... help him deal more rationally with con valescence by countering excessively anxious attitudes towards the future.

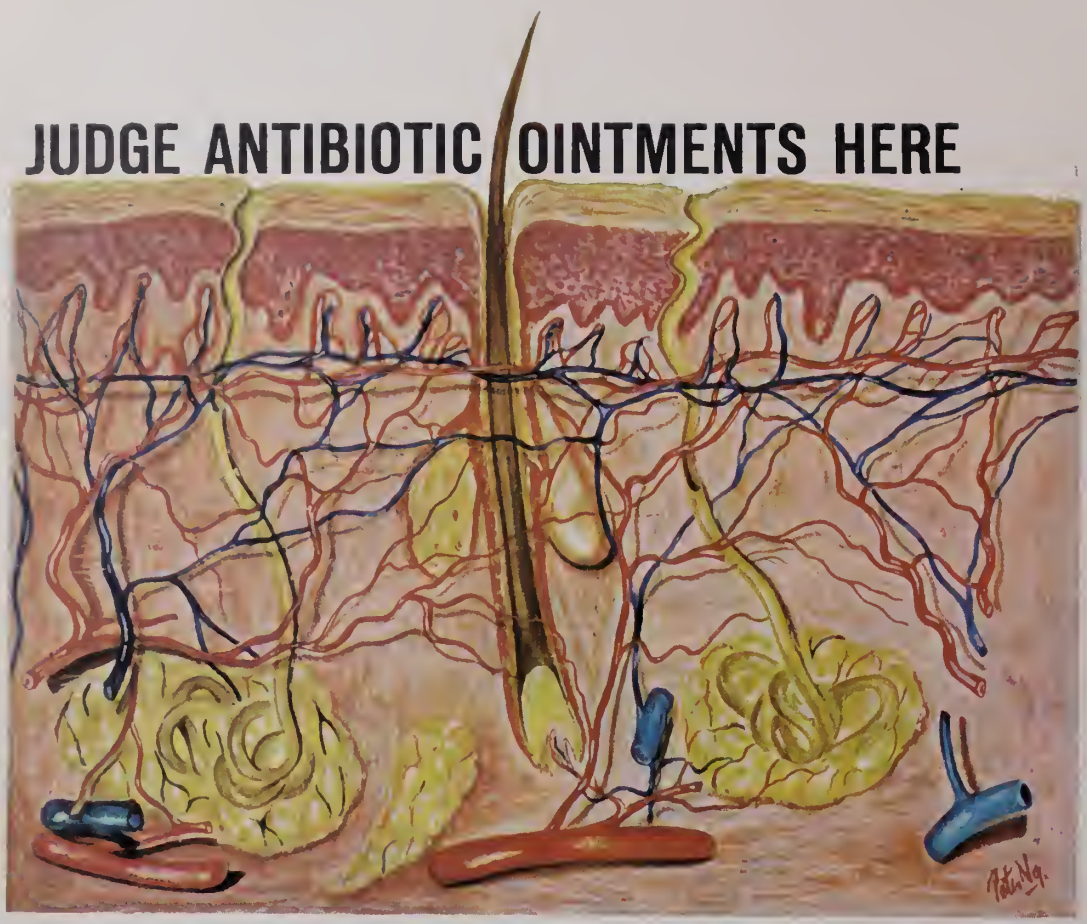
When the cardiac patient can't adjust emotionally to post-recovery limitations—Valium, through its promp and pronounced calming action on psych tension, may help avoid exacerbation or aggravation of cardiac symptoms.

On proper maintenance dosage, Val seldom dulls the senses or interferes wit functioning.

Should anxiety-induced insomnia a problem— an *h.s.* dose added to the *t* schedule usually helps permit a night o restful sleep.

Valium®
(diazepam)
2-mg, 5-mg and 10-mg tablets

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®
brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

Cuando comen lo que les gusta y no lo que deben...



ayude a cubrir "el déficit" de vitaminas con

Unicap Therapeutic

10 vitaminas combinadas con 7 minerales

Cada tableta contiene:

Vitamina A	1.5 mg.
Vitamina D	10 mcg.
Mononitrato de Tiamina (B-1)	10 mg.
Riboflavina (B-2)	10 mg.
Acido Ascórbico (C) (como ascorbato de sodio)	300 mg.
Niacinamida	100 mg.
Clorhidrato de Piridoxina (B-6)	2 mg.
Pantotenato de Calcio	20 mg.
Cobalamina (B-12) (como concentrado de cobalamina)	20 mg.
Vitamina E	30 Unidades Internacionales
Hierro (a partir de 50 mg. de sulfato ferroso)	10 mg.
Yodo (como yoduro de potasio)	0.15 mg.
Calcio (como carbonato)	50 mg.
Cobre (como sulfato)	1 mg.
Manganeso (como sulfato)	1 mg.
Magnesio (como sulfato)	6 mg.
Potasio (como sulfato)	5 mg.

Posología: Adultos y niños mayores de 6 años – 1 tableta diaria.

Presentación: Frascos de 30 y 90

Upjohn

PR 5226.1 MAY, 1969

6811 MARCA REGISTRADA EN E.U.A.: UNICAP THERAPEUTIC

UPJOHN INTER-AMERICAN CORPORATION / CAPARRA / PUERTO NUEVO



from the discord of anxiety...



to emotional harmony

with the aid of antianxiety

Librium®
(chlordiazepoxide HCl)

5-mg, 10-mg and 25-mg capsules

In an age of swift change and challenge, susceptible individuals may experience varying degrees of excessive anxiety. The resulting emotional stress may precipitate significant functional disorders or complicate existing organic disease. In properly individualized maintenance dosage, Librium (chlordiazepoxide HCl) quickly helps relieve anxiety and apprehension, provides useful adjunctive therapy in psychophysiologic disorders—yet seldom impairs mental acuity or ability to function. Librium has demonstrated a wide margin of safety in short- and long-term therapy.

Also available:

Libritabs®
(chlordiazepoxide)

Roche LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patient against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use coution administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed agains its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limit smallest effective dosage (initially 10 mg or less per day) to preclude ata or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentia drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impoired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Emp usual precautions in treatment of anxiety states with evidence of impend ing depression; suicidal tendencies may be present and protective measu necessary. Variable effects on blood coagulation have been reported ver rarely in patients receiving the drug and oral anticoagulants; causal rela tionship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion may occur, especia in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the low dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstru irregularities, nausea and constipation, extrapyramidal symptoms, incre and decreased libido—all infrequent and generally controlled with dosa reduction; changes in EEG patterns (low-voltage fast activity) may appe during and after treatment; blood dyscrasias (including agranulocytosis) jaundice and hepatic dysfunction have been reported occasionally, mak periodic blood counts and liver function tests advisable during protracte therapy.

DISPLAY
SHELVES

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

MAMMARY COSMETIC SURGERY 280
Alberto E. Sánchez, MD, FACS

EPIDEMIC ERYTHEMA INFECTIOSUM IN ADJUNTAS, PUERTO RICO 286
William D. Clark, MD, Lynn H. Ratner, MD, Rosendo Martínez, MD and Julio Colón, PhD

COMPREHENSIVE STATEWIDE PLANNING, A REHABILITATION BLUEPRINT FOR 1975 . . . 290
Anthony S. DeSimone

CONGENITAL FACTOR XIII DEFICIENCY: 294
Report of Two Cases
Jean Fradera, BS, MT, Jenaro Haddock, MD, E. Pérez Santiago, MD and Norman Maldonado, MD

CASE REPORT
HYPERTHYROIDISM AND MYOCARDIAL INFARCTION 300
G. R. Martínez-Rovira, MD, Lillian Haddock, MD, FACP and Ryan Crenshaw, MD

EDITORIAL 305
¿Quién se Robó las Tortas?

ACTUALIDADES MEDICAS 307

NOTICIAS 308

E FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON
27 OCT 1969

VOL. 61 AGOSTO, 1969 NUM. 8

Why DBI-TD (phenformin HCl) is the only significant advance in oral diabetes therapy since sulfonylureas



□ glucose ○ insulin

THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON
27 OCT 1969

1 Only DBI-TD does more than just ower blood sugar–it directs sugar rimarily to where it is most needed... n muscle.

the maturity-onset diabetic, blood sugar is evated, but apparently not enough glucose enters uscle. Unlike other agents, DBI-TD increases ucose utilization primarily in skeletal muscle here sugar is needed.

2 Only DBI-TD actually promotes eight loss in the maturity-onset iabetic who is overweight.

l oral drugs *except* DBI-TD increase insulin ease, which suppresses lipolysis and can celerate lipogenesis. Thus DBI-TD, by avoiding sulin oversecretion, appears to ease—rather than gravate—the weight problem in patients responsive to diet alone.

3 Only DBI-TD, among oral agents, elps counterbalance the inefficient ction of the diabetic's own insulin.

here is increasing evidence that many overweight aturity-onset diabetics have higher than normal ood insulin levels, but this insulin is not efficient promoting muscle glucose uptake. Unlike all her oral agents, DBI-TD helps control diabetes by ectively moving sugar into muscle without ther increasing insulin levels.

4 Only DBI-TD, because of its nique action, reduces the risk of condary failure and hypoglycemic eaction.

I-TD is the only agent that lowers blood sugar hout stimulating the release of insulin from the ncreas. Secondary failures are infrequent with I-TD, and there is relative freedom from poglycemic reaction when DBI-TD is used alone.

a more
physiological approach
to begin with

DBI®-TD
(phenformin HCl)

timed-disintegration capsules 50 mg.

Dosage: 1 to 3 capsules daily. **Side Effects:** Gastrointestinal, occurring more often at higher dosage levels, abate promptly upon dosage reduction or temporary withdrawal. **Adverse Reaction:** Urticaria. **Precautions:** Occasionally an insulin-dependent patient will show "starvation" ketosis (acetonuria without hyperglycemia) which must be differentiated from "insulin lack" ketosis which is accompanied by acidosis, and treated accordingly. Lactic acidosis has been reported in nondiabetics and diabetics treated with insulin, with diet, and with DBI. Question has arisen regarding possible contribution of DBI to lactic acidosis in patients with renal impairment and azotemia and also those with severe hypotension secondary to myocardial or bowel infarction. Periodic B.U.N. determination should be made when DBI is administered in the presence of chronic renal disease. DBI should not be used when there is significant azotemia. Any cardiovascular lesion that could result in severe or sustained hypotension, which may itself lead to development of lactic acidosis, should be considered cause for immediate discontinuation of DBI at least until normal blood pressure has been restored and is maintained without vasopressors. Should lactic acidosis occur from any cause, vigorous attempts should be made to correct circulatory collapse, tissue hypoxia, and pH. **Contraindications:** Severe hepatic disease, renal disease with uremia, cardiovascular collapse. Not recommended without insulin in acute complications of diabetes (metabolic acidosis, coma, severe infections, gangrene, surgery). ***Pregnancy Warning:*** *During pregnancy, until safety is proved, use of DBI, like other oral hypoglycemic drugs, is to be avoided.* **Also Available:** DBI tablets 25 mg. *Consult product brochure.*

USV

USV PHARMACEUTICAL CORP., New York, N.Y. 10017
Producers of ARLIDIN® (nylidrin HCl)

What makes a

A man?
Another woman?
Three kids?
No kids at all?
Wrinkles?
You name it.

Is she truly depressed?

Is that why she lets go in your office?

You comfort her.
Talk to her.
And, if she is depressed, consider Pertofrane.
Because
in 3 to 5 days
she can often begin
to cope,
work,
maybe play,
even enjoy.

Pertofrane®

desipramine hydrochlori
In depression...
when words are not eno

But before you prescribe Pertofrane, please see the full prescribing information and especially note Contraindications, Precautions, Warning, Adverse Reactions and Dosage. A brief summary of that information is included here.

Pertofrane® desipramine hydrochloride

Indications For relief of depression.

Contraindications. Do not use drugs of the MAOI class with Pertofrane. Hyperpyretic crises or severe convulsive seizures may occur; potentiation of adverse effects can be serious or even fatal. When substituting this drug in patients receiving an M.A.O.I., allow an interval of at least 7 days. Initial dosage in such patients should be low and increases should be gradual and cautiously prescribed.

Warning: Activation of psychosis may occasionally be observed in schizophrenic patients. Do not use in patients under 12 years old, and do not use in women who are or may become pregnant unless the clinical situation warrants the potential risk.

Precautions: Careful supervision and protective measures for potentially suicidal patients are necessary. Discontinuation of therapy or adjunctive use of a sedative or tranquilizer may be necessary in the presence of increased anxiety or agitation, hypomania or manic excitement. However, phenothiazines may aggravate the condition. Atropine-like effects may be more pronounced (e.g. paralytic ileus) in susceptible patients and in those receiving anticholinergic drugs (including antiparkinsonism agents). Carefully observe patients with increased intraocular pressure. Prescribe cautiously in hyperthyroid patients and in those receiving thyroid medications. Cardiovascular complications (myocardial infarction and arrhythmias) are potential risks since they have occasionally occurred with imipramine, the parent compound. Desipramine may block the pharmacologic activity of guanethidine and related adrenergic neuron-blocking agents. Hypertensive episodes have been observed during surgery in patients on desipramine therapy.

Before prescribing the drug, the physician should be thoroughly familiar with prescribing information, with the literature, with all adverse reactions, with the diagnosis and management of depression, and with the relative merits of all measures for treating the condition.

Adverse Reactions: Dry mouth, constipation, disturbed visual accommodation, anorexia, perspiration, insomnia, drowsiness, dizziness, headache, nausea, epigastric distress, and skin rash (including photosensitization) may appear. Since orthostatic hypotension has occurred, carefully observe patients requiring concomitant vasodilating therapy, particularly during the initial phases. Other adverse reactions include tachycardia, changes in EEG patterns, tremor, falling, mild extrapyramidal activity, neuromuscular incoordination, epileptiform seizures. A confusional state (with such symptoms as hallucinations and disorientation) occurs occasionally and may require reduced dosage or discontinuance of therapy. Rarely, transient eosinophilia, slight elevation in transaminase levels, transient jaundice, or liver damage have occurred. If abnormalities occur in liver function tests, discontinue drug and investigate. Occasional hormonal effects, particularly decreased libido or impotence and instances of gynecomastia, galactorrhea and female breast enlargement have been observed. Urinary frequency or retention may occur. The drug should be discontinued if agranulocytosis, bone marrow depression, jaundice, thrombocytopenia, or purpura occur.

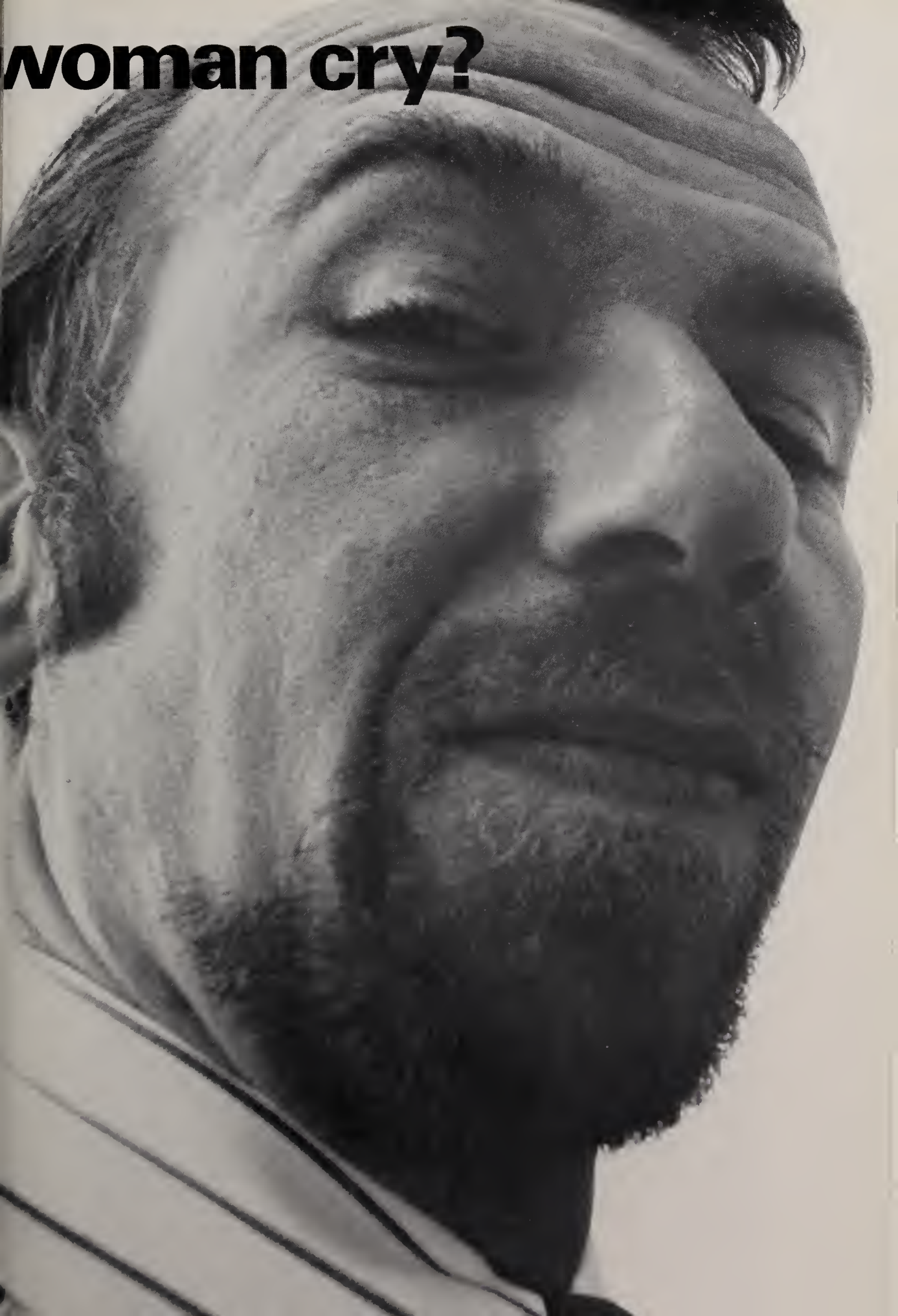
Dosage. 25 to 50 mg. t.i.d. The maximum daily dose is 200 mg. Continue maintenance dosage for at least 2 months after obtaining satisfactory response. Generally, elderly and adolescent patients should be given low doses.

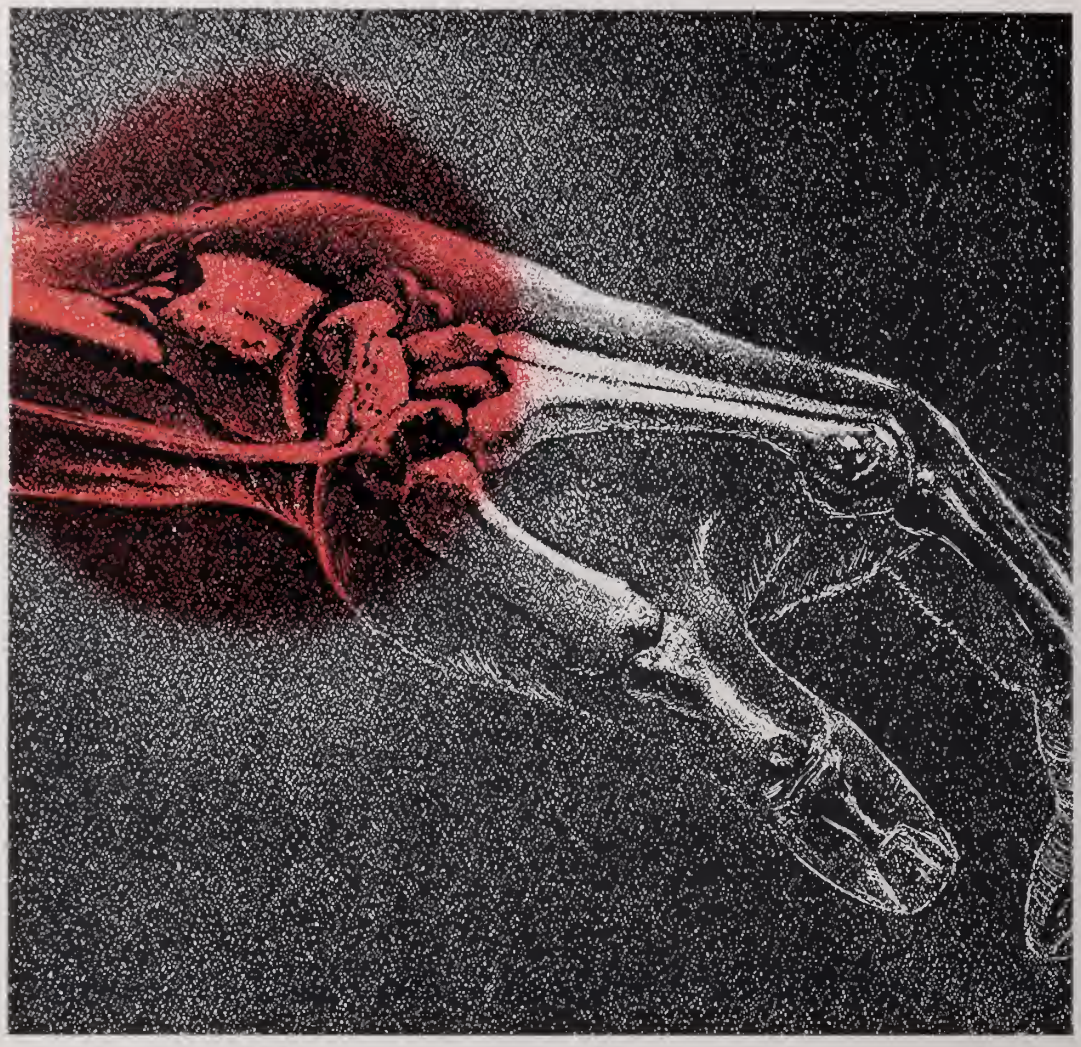
Availability: Pink capsules of 25 mg. in bottles of 100 and 1000. (B) 46-530-E

For complete details, please see the prescribing information.

Geigy Pharmaceuticals
Division of Geigy Chemical Corporation
Ardsley, New York 10502

woman cry?





Can fracture cases do better with Ananase?

This one did: A 42-year-old fireman fell and suffered a fracture of his left wrist. When pressure and edema appeared to be increasing under the cast, Ananase was used adjunctively for a trial period of 24 hours. "When seen the next morning, all edema and pressure had disappeared." Marked relief was experienced with no further treatment.[1]

When the effect of Ananase on inflammation and edema was compared with the expected response to conventional therapy, without Ananase, "superior" results were obtained with Ananase in 83% of 18 fracture cases observed.[1]

Your own experience will confirm the efficacy of Ananase in helping to reduce inflammation and edema and speeding the healing process. For best results give Ananase early and in maximum dosage.

Usual Adult Dose: Initially, two tablets four times daily. For maintenance, one tablet three or four times daily.

Side Effects: Ananase has a wide margin of safety. There have been few toxic effects reported. It should be used with caution in patients with abnormalities of the blood clotting mechanism, such as hemophilia, or with severe hepatic or renal disease.

Supplied: Bottles of 100 and 500 tablets, each tablet containing 50,000 Rorer units.

One Rorer unit of protease activity is defined as that amount of enzyme which will so hydrolyze a standardized casein substrate at pH 7.0 and 25° C temperature as to cause a change in absorbance of 1×10^{-5} at 280 mu per minute of reaction time.

1. Cirelli, M. G.: Delaware M. J. *34*:159 (June) 1962.

ROHRER

WILLIAM H. RORER, INC.
FORT WASHINGTON, PA.

Ananase®
(plant protease concentrate)



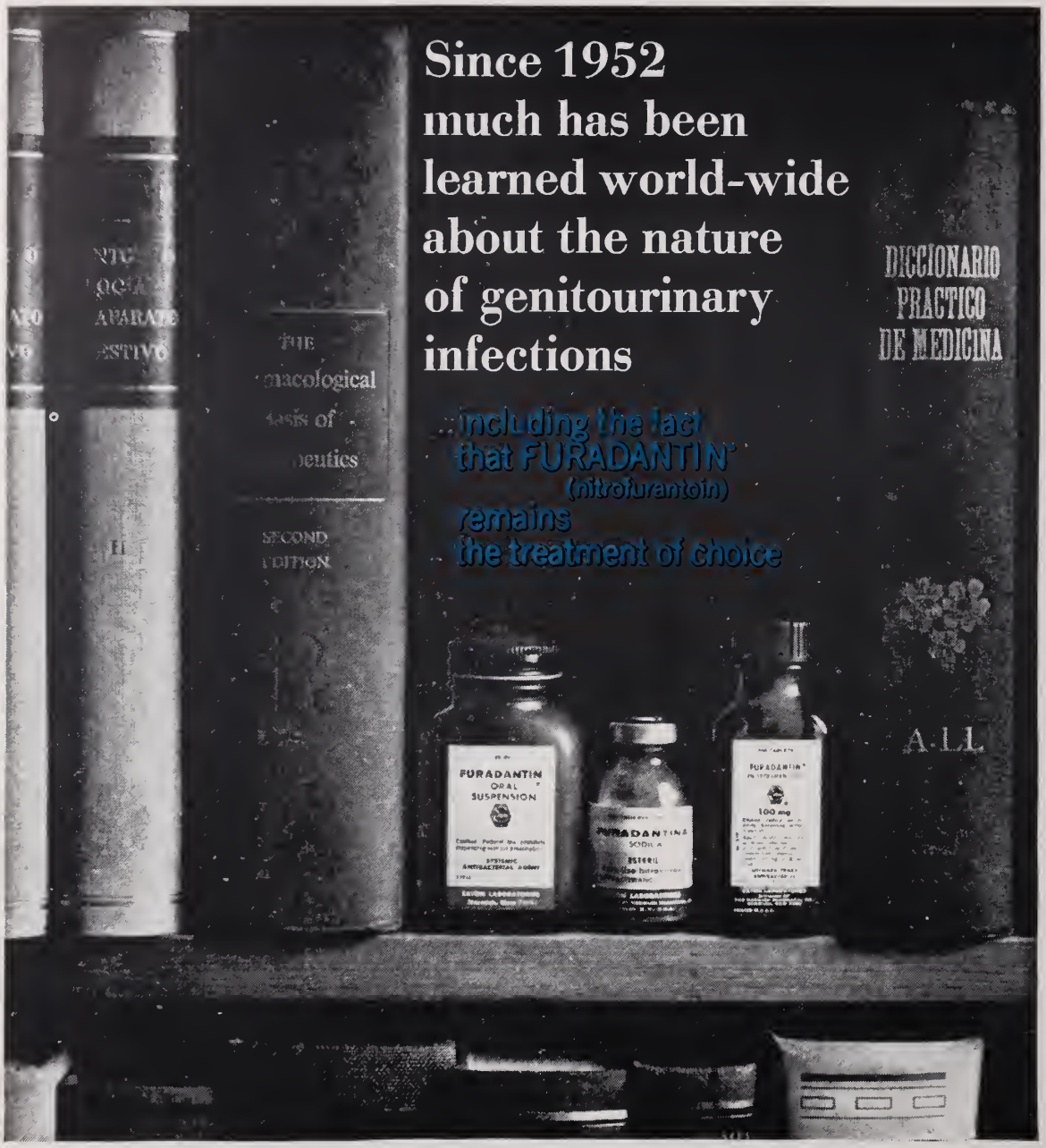
Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation



when urinary infection is suspected,

try **Furadantin** first

· specific · safe · superior

Furadantin is supplied as Tablets, 50 mg. and 100 mg., bottles of 25, 100, 500 and 1000; and as Oral Suspension, bottles of 60 cc.

EATON LABORATORIES
Division of The Norwich Pharmacal Co., Norwich, New York, U.S.A.

Eaton*

*REGISTERED TRADEMARK

Otro nuevo descubrimiento de Lakeside



cuando la depresión abruma

NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extrapiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.



Clues to PVD

The heavy smoker with vasospasm

He may be comparatively young or approaching middle age. Typically, he is a heavy cigarette smoker—a pack or more a day for a number of years. Whether smoking is a causative or an important exacerbating factor in peripheral vascular disease is still under discussion. But the vasoconstrictive effects of nicotine are firmly supported by a substantial body of laboratory and clinical evidence, and the close association is now generally accepted.

Thus, a history of heavy smoking coupled with vasospasm may serve as warning signals to the physician. When a diagnosis is established, therapeutic measures are directed toward increasing the local circulation, and appropriate management of the patient's general medical needs should be instituted. These include the important safeguards of keeping warm and refraining from smoking.

Before prescribing Roniacol Timespan (nicotinyl alcohol tartrate), please consult complete product information, a summary of which follows.

Indications: Conditions associated with deficient circulation; *e.g.*, peripheral vascular disease, vascular spasm, varicose ulcers, decubital ulcers, chilblains, Meniere's syndrome and vertigo.

Caution: Roche Laboratories endorses caution in the administration of any therapeutic agent to pregnant patients.

Side Effects: Transient flushing, gastric disturbances, minor skin rashes and allergies may occur in some patients, seldom requiring discontinuation of the drug.

Dosage: 1 or 2 Timespan Tablets morning and night.

How Supplied: Timespan Tablets—150 mg nicotinyl alcohol in the form of the tartrate salt —bottles of 50.

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

mportant in
otal management of
eripheral vascular disease,
ascular spasm or
hilblains

Roniacol®
Timespan®
(nicotinyl alcohol tartrate)

or relief of ischemic symptoms

nvenience of b.i.d. dosage—sustained-release Timespan Tablets usually provide longed relief of ischemic symptoms with two doses daily.

oothness of onset—the action of Roniacol (nicotinyl alcohol) is smooth and dual in onset, rarely causing severe flushing.

ectivity of action—relaxes the musculature of peripheral blood vessels.

gh degree of safety—side effects seldom require discontinuation of therapy.

Mild ulcerative colitis may be triggered here...



In mild ulcerative colitis, a number of factors can precipitate an attack: for instance, dietary indiscretion, such as eating raw foods, or emotional overreaction, such as that aroused by financial difficulties. No matter what causes the patient's sensitive colon to "act up," he soon suffers from acute discomfort...and often, from anxiety and apprehension as well. Such patients frequently respond well to adjunctive dual-action Librax® therapy.

Librax combines, in a single convenient capsule, the well-known antianxiety effect of Librium® (chlordiazepoxide HCl) and the dependable anticholinergic /antispasmodic effect of Quarzan® (clidinium Br). Therefore, as Librax helps to relieve the patient's excessive anxiety and reduce his overreaction to stress, it also, at the same time, helps to control hypersecretion and hypermotility, thus relieving spasm and abdominal discomfort.

With Librax, the dosage schedule is simple: 1 or 2 capsules, t.i.d. or q.i.d., will in most cases bring the patient significant relief of both the emotional and physical elements that contribute to his psychovisceral disorder.

Before prescribing, please consult complete product information, a summary of which follows.

INDICATIONS: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

CONTRAINDICATIONS: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide.

WARNINGS: Caution patients about possible combined effects with alcohol and other CN depressants. As with all CNS-acting drugs, ca tion patients against hazardous occupations quiring complete mental alertness (*e.g.*, operati machinery, driving). Though physical and p chological dependence have rarely been report on recommended doses, use caution in a ministering Librium (chlordiazepoxide hydr chloride) to known addiction-prone individua or those who might increase dosage; withdraw symptoms (including convulsions), followi discontinuation of the drug and similar to tho seen with barbiturates, have been reported. U of any drug in pregnancy, lactation, or in wom of childbearing age requires that its poten benefits be weighed against its possible haza As with all anticholinergic drugs, an inhibi effect on lactation may occur.

PRECAUTIONS: In elderly and debilitate limit dosage to smallest effective amount to p clude development of ataxia, oversedation confusion (not more than two capsules per d initially; increase gradually as needed and t

or here.



Though generally not recommended, if ...ation therapy with other psychotropics ... indicated, carefully consider individual ...acologic effects, particularly in use of po... ing drugs such as MAO inhibitors and ...thiazines. Observe usual precautions in ...ce of impaired renal or hepatic function. ...oxical reactions (*e.g.*, excitement, stimula... ...d acute rage) have been reported in psy... ...c patients. Employ usual precautions in ...ent of anxiety states with evidence of im... ...g depression; suicidal tendencies may be ...t and protective measures necessary. Vari... ...ffects on blood coagulation have been ...ed very rarely in patients receiving the ...nd oral anticoagulants; causal relation... ...hs not been established clinically.

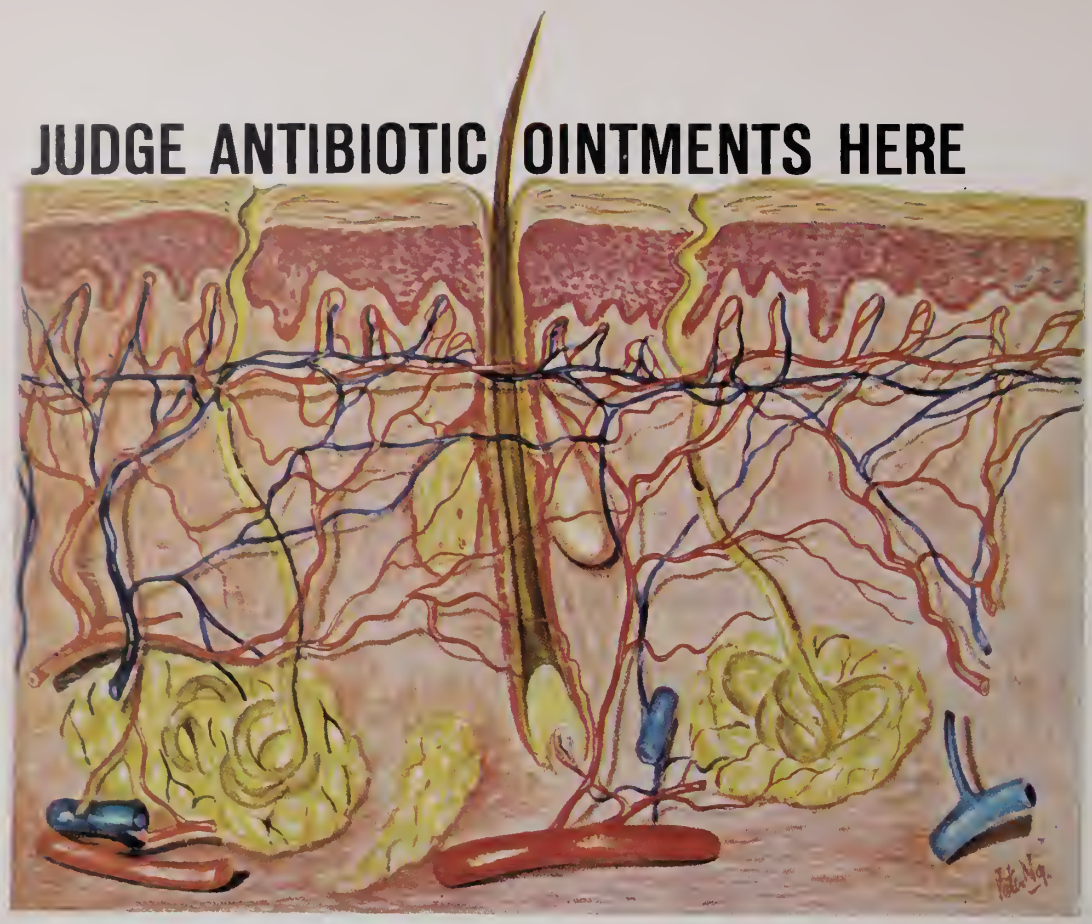
...ERSE REACTIONS: No side effects or ...stations not seen with either compound ...have been reported with Librax. When ...iazepoxide hydrochloride is used alone, ...ness, ataxia and confusion may occur, ...lly in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver-function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diet.

two good reasons for prescribing LIBRAX®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

ROCHE
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®
brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:
Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:
El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:
Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.



There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

Member of the National Association of Blue Shield Plans

MAMMARY COSMETIC SURGERY

Alberto E. Sánchez, MD, FACS

The female breast is a secondary sexual structure that our modern society has used as a measure of beauty. Any abnormality of the breast may so possess the female, that frequently it becomes the basis of a serious emotional problem.

Although endocrine dysfunction is considered as the main etiologic factor for most breast malformations, no hormone therapy has proved beneficial once the malformation is established. Hence, the only recourse for correction is plastic surgery, and plastic surgery does in most instances, provide the proper solution.

A normal breast is accepted to be one with minimal ptosis and of a size in brassiere measurement ranging from 32-38 with B to C cup.

For descriptive purposes, three types of fundamental deformities are recognized:

1) *Hypomastia* or hypoplasia or underdevelopment of the breast. The organ in no way approaches the average normal in form, size or extent, and is frequently flabby to the point of being pendulous. In some cases the woman is completely flat-chested with only a nipple present.

2) *Hypermastia* or moderate hyperthrophy or over development of the total mass and volume of the breast, up to between two and three times of what would be considered the normal size for the particular torso.

3) *Gigantomastia* or gross enlargement beyond the limits set for hypermastia.

Surgical Techniques

Reduction Mammaplasty:

Unlike other plastic operations, interventions on the breast are of fairly recent origin. There are no ancient records of plastic reduction of the female breast, yet the procedure is relatively old, almost over half a century. The origin of our present reduction mammaplasty probably began with Aubert (1). He popularized the concept of nipple transposition and utilized a crescent shaped excision of skin and breast tissue from the inferior quadrants and covered the complete breast with a single skin flap. Kraske (2) modified the original Lexer procedure by using an inferior vertical wedge excision of gland and both vertical and transverse excision of skin creating the inverted ("T") closure.

Thorek's (3) technique is well known and consisted of transplantation of the nipple as a free split skin graft combined with resection of the distal excess portions of skin and gland. Joseph (4) proposed a two stage procedure by first transposing the nipple on a pedicle through a subcutaneous channel and secondly doing the major tissue resection. This was mainly intended to be used in the cases of gigantomastia. Bames (5), Aufricht (6) and Wise (7) were among the first to propose complete pre-operative planning and also stress the use of a pattern to mark accurate and precise skin flaps before the beginning of the operation. The technique that we use was described by Strombeck (9) from Stockholm, Sweden and this is probably one of the most widely used techniques today. It has a few details in the technique that are specific to itself, but basically it is a technique that takes all the good parts of the other techniques and combines them to be able to use this procedure for the reduction of the small hypermastia cases up to the tremendous gigantomastia patients.

Augmentation Mammaplasty:

Hypomastia or aplasia of the breast is one of the worst breast defects a woman can have. The appearance of being inadequate and not a complete woman, may undermine her basic personality. When a woman is so unfortunate as to undergo the simple

---

From the Plastic Surgery Section, Presbyterian Hospital, Santurce, Puerto Rico, and Plastic Surgery Section, San Juan City Hospital, Puerto Rico Medical Center.

Presented at the Annual Convention "Sociedad de Médicos Graduados, Universidad de Puerto Rico" Septiembre 2, 1967.

or radical mastectomy, either unilateral or bilateral, breast augmentation is extremely valuable in the restoration of a sense of womanhood.

In the augmentation of the size and shape of the breast, local tissues have been used. Barnes (9) and Longacre (10) described techniques that use the local tissues and also fat transplants from the buttocks, but all of these have given either poor or unreliable results. The fact that plastic surgeons resort to implantation of foreign materials in body structures as replacements for a lack or loss of tissue, is certainly common knowledge. This especially has come a long way since the use of glass balls, ivory balls, and injections of paraffin. During the 19th and early 20th centuries, all sorts of substances that could be conceived of, organic or inorganic, were implanted in both animals and humans with poor results. The search gained momentum with the clinical report on silicones by Jaques (11) and his associates in 1946 and on the polyvinyl alcohol (Ivalon) by Grindlay and Waugh (12) in 1952. The technique is fairly simple. It consists of introduction of the prosthetic material through a 2 1/2 inch submammary fold incision into a pocket dissected above the pectoralis fascia.

Results

Using the Strombeck technique we have done forty-eight (48) cases of bilateral reduction mammaplasty (Figs. 1, 2, 3), all of them with satisfactory to very good results. There have been four complications. One was a mild infection that finally subsided after two weeks of drainage. Another was a subcutaneous infarction of a large piece of fat with subsequent induration of the lower pole of the breast, but no external evidence. A third was a partial necrosis of a nipple which eventually healed without any cosmetic defect. And a fourth was due to total loss of nipple on one breast which we considered catastrophic, but the end result was satisfactory after a substitution of the nipple was done by a labia minora graft. In this case where the nipple was lost, we actually modified the Strombeck technique by cutting the dermis bridge that he creates and therefore we cannot strictly say that this complication belongs to this technique.

We have used the Cronin implants in twenty-one cases for bilateral augmentation mammaplasty with satisfactory results in all of the cases and no major complications (Figs. 4, 5, 6).



Fig. 1: *a) Patient before, normal size breast with marked ptosis; b) Patient after reduction mammaplasty. Note minimal scarring.*

One out of ten will develop serum collection, which is eliminated by needle and syringe aspirations after a week or ten days post operative and repeated every other day for three to four times. These patients tend to have a slightly more indurated breast than the average implant. We have found this to be of no concern to the patients and all seem to be extremely pleased with the results.

Discussion

In 1953, Brown and Fryer (13) first reported on the possible use of silicones in plastic surgery. Chemically the silicone rubbers are polymers of di-



Fig. 2: *a) Patient before surgery. Nineteen-year old girl with virginal hypertrophy, moderate to severe; b) Patient after reduction mammaplasty - some scarring present - picture taken when only two months post-op. As a rule in a year almost all scarring fades away.*

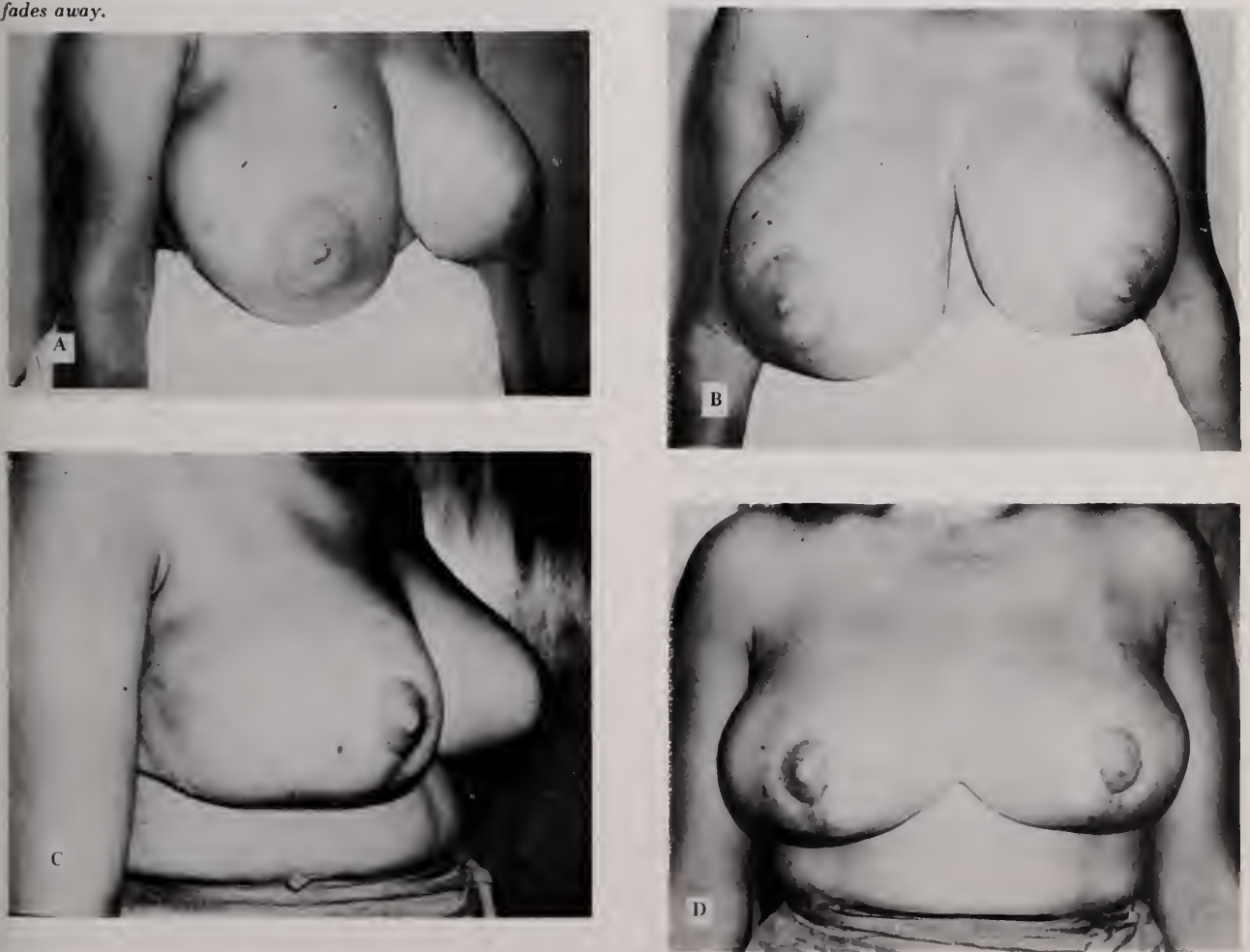


Fig. 3: *a) Patient before reduction, 22-year old patient with gigantomastia - Angle view; b) Patient before - same patient as 3a - front view; c) Patient after reduction mammaplasty, 2 mo. post op. - irregularities under right breast smooth out in 6 mo. to a year: d) Patient after - front view.*

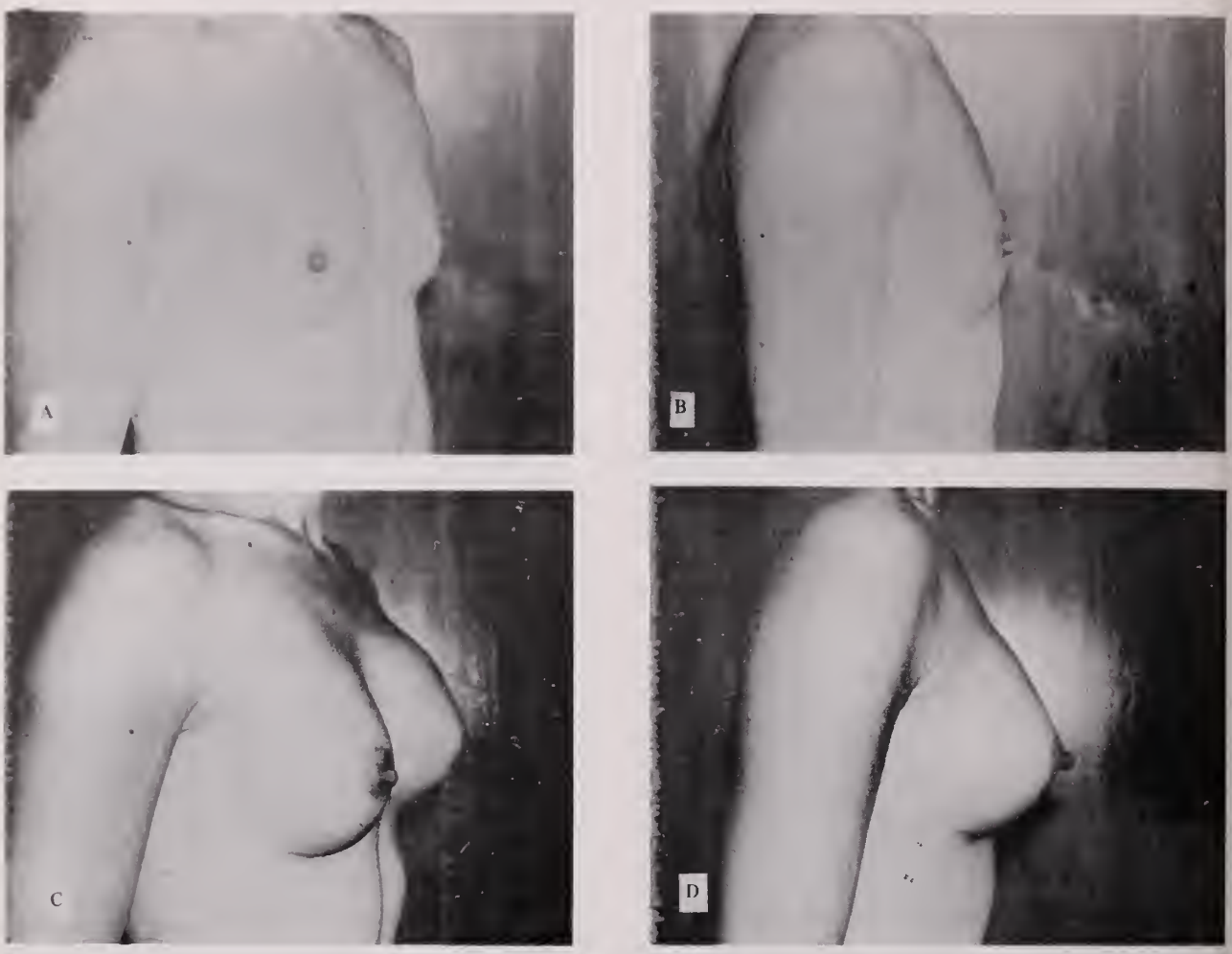


Fig. 4: *a) Patient with extreme hypoplasia before augmentation mammaplasty and with Silicone Cronin Prosthesis; b) Same patient before. Lateral view; c) Patient after augmentation. Note minimal scarring; d) Patient after surgery. Note normal contour and profile.*

methylsiloxanes to which fillers may be added to vary the consistency and increase its strength. When activated by a catalyst, close linkages occur between chains of polymers and the result is silicone rubber. Ideally a synthetic tissue substitute should be: 1) not physically modified by tissue fluid, 2) chemically inert, 3) non-inflammatory, 4) non-carcinogenic, 5) non-allergenic, 6) capable of fabrication in the form desired and, 7) it should not support or encourage infection.

Silastic®, Dow Corning Corp., trade name for silicone rubber, has been able to meet these characteristics. In 1960, Dr. Cronin (16) started using the Cronni Silastic prosthesis. In 1963, he published his first preliminary report. Since then several thousands of these breast prosthesis have been implanted in patients all over the world. In March 1966, the Dow Corning Corp., reported on a study that they made from the reports of physicians all over the United States that had been using the Silastic® implant operation. Over 2,500 operations of this type were reported by them. We can assume that since then this figure has more than doubled. It is calculated at the present time that 40,000 or more patients have had breast implants of one type or another including about 5,000 using the Cronin Silastic prosthesis. The biggest fear that everybody has with the implants of foreign materials is the potential of cancer development. We believe that the following data will help to greatly diminish that fear. Harris (14) in 1961, reviewed the experience of ten years and found that no cancer was directly related to plastic implants in the breast. As recently

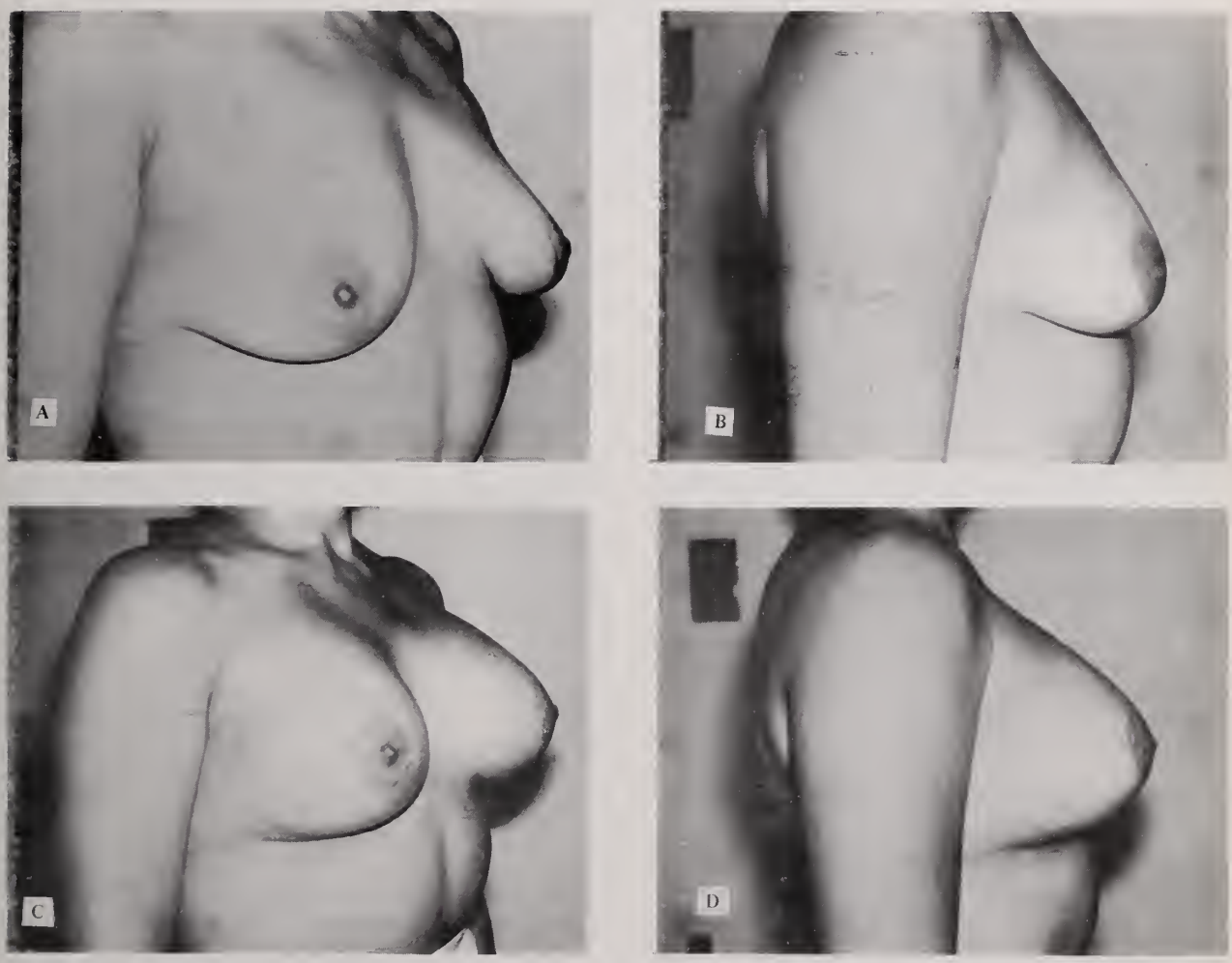


Fig. 5: *a) Patient before - moderate hypoplasia with some ptosis; b) Patient before - lateral view; c) Same patient. Medium size implant; d) Same patient. Note correction of ptosis along with augmentation.*

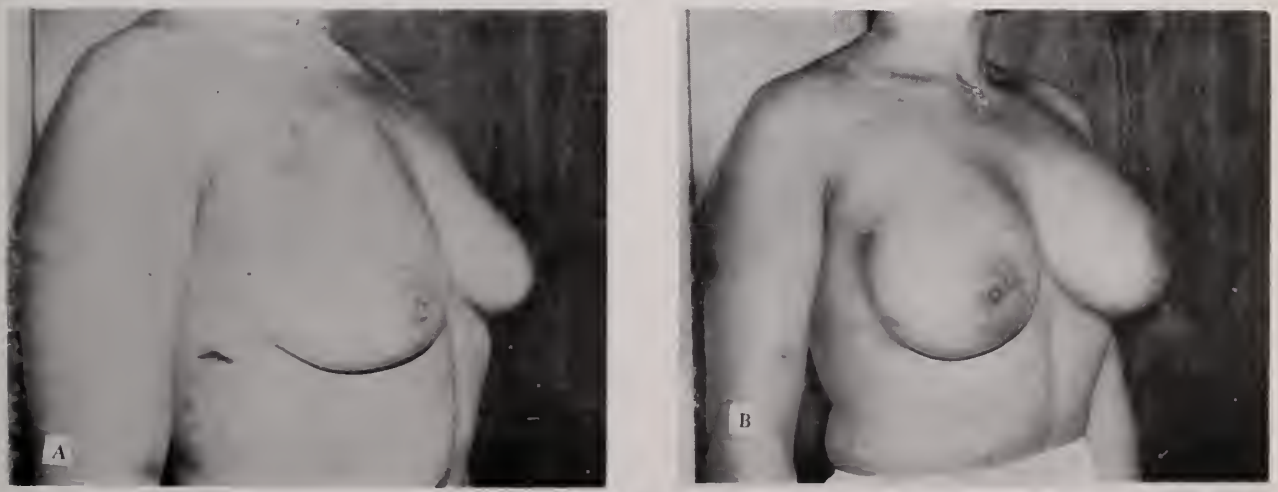


Fig. 6: *a) Patient before, moderate hypoplasia with ptosis; b) Patient after augmentation with large size prosthesis; patient in show business wanted maximum enlargement.*

as March 1967, Hoopes and Edgerton (15) reviewed most of the literature available and found six cases of cancer in patients that had breast implants of one type or other. Only one was following a silicone jelly implant and none of them could be attributed directly to the implant.

Summary

The literature is reviewed in regards to corrective cosmetic surgery of the female breast. The author's experience with forty-eight bilateral reduction mammaplasties is presented with good results in all. Four cases in which complications developed, recovered without ill effects. Twenty-one bilateral augmentation mammaplasties are presented with satisfactory results in all.

Resumen

Se revisa la literatura con respecto a cirugía plástica correctiva de la mama. Se presenta el hecho de que en la literatura no hay evidencia definitiva que relacione este tipo de cirugía con cáncer de la mama. Se resume la experiencia del autor con cuarenta y ocho casos de mamaplastia de reducción bilateral en donde se obtuvieron resultados satisfactorios en todos y solo cuatro complicaciones. Todas estas complicaciones fueron menores que al corregirse dieron resultados satisfactorios. En veinte y un casos de mamaplastia bilateral de aumentación, todas obtuvieron resultados satisfactorios.

References

1. *Aubert, V.:* Hypertrophic mammarle de la puberte - Arch, France-Belges Clin. 3: 284, 1923.
2. *Kraske, H.:* Die operation del arophischen and hypertrophischen hangelbrust. Maiichen Med. Wechuschr 60: 672, 1923.
3. *Thorek, M.:* Possibilities in reconstruction of the human forum. New York M. J. and Rec. 116: 572, 1922.
4. *Joseph, J.:* Zur operation del hypertrophischen hangebrust. Dentsche Med. Wechuschr 51: 1103, 1925.
5. *Bames, H. O.:* Reduction of massive breast hypertrophy - Plastic and reconstructive surgery 3: 560, 1948.
6. *Aufricht, G.:* Mammaplasty for pendulous breasts, plastic and reconstructive surgery 4: 13, 1949.
7. *Wise, R. W.:* Further experience with reduction mammaplasty - Plastic and reconstructive surgery 32: 12, 1963.
8. *Strombeck, J. O.:* Mammaplasty - Report of a new technique based on the two-pedicle procedure. British J. of Plastic Surgery 13: 79, 1960.
9. *Bames, H.:* Augmentation mammaplasty by lipo-transplants - Plastic and reconstructive surgery 3: 560, 1959.
10. *Longacre, J.:* Correction of the hypoplastic breast with special reference to reconstruction arth demo-fat pedicle flaps - Plastic and reconstructive surgery 14: 431, 1954.
11. *Jaques, L.:* Silicones and blood coagulation - Canad. M. A. S. - 55: 26, 1946.
12. *Grindlay, J. and Waugh, S.:* Plasti sponge which acts as a frame work for living tissue. A. M. A. Arch. of Surgery 63: 288, 1952.
13. *Brown, J. B. and Fryer, M.:* Silicones in plastic surgery - Plastic and reconstructive surgery 12: 374, 1953.
14. *Harris, I.:* Research in plastic implants. J. Intern. College of Surgery 35: 630, 1961.
15. *Hoope, J. and Edgerton, M.:* Organics in mammaplasty - Plastic and reconstructive surgery 39: 263, 1967.
16. *Cronin, T. D. and Gerow, F. J.:* Augmentation Mammaplasty: A New "Natural Feel" Prosthesis, Excerpta Medica International Congress Series No. 66, Proceedings of the IIIrd International Congress of Plastic Surgery, Wash., D. C. pp. 41-49, 1963.

EPIDEMIC ERYTHEMA INFECTIOSUM IN ADJUNTAS, PUERTO RICO

William D. Clark, MD
Lynn H. Ratner, MD
Rosendo Martínez, MD
Julio Colón, PhD

Erythema infectiosum ("fifth disease") is a mild febrile exanthem which affects mostly children and is commonly seen in epidemic form. No sequelae of this disease have been recognized and although a viral etiology is suspected, no causative agent has been definitely isolated. An outbreak of this striking disease occurred in Adjuntas, Puerto Rico, during the school year 1967-68. The present report describes clinical and epidemiologic investigations made in this tropical setting from August 1967 through March 1968, and presents a brief summary of the recent literature in regard to this disease.

Materials and Methods

Children with an unusual rash began to visit the Adjuntas Centro de Salud for therapy shortly after school began in August 1967. Rubella, an enteroviral exanthem, and infectious mononucleosis were considered as diagnostic possibilities, but neither clinical nor laboratory evidence was sufficient to establish a definite diagnosis. Hemoglobin levels, white blood counts and differential smears, urinalyses, and heterophile agglutination determinations were normal in all cases tested. In November, a team reviewed records of children who had visited the Health Center and also interviewed several children with acute cases. Since almost all of the cases were from Barrio Guilarte, students were interviewed at the Guilarte School to determine whether they previously had the rash, and observations were made of other acute cases. Specimens for viral isolation were carried to the Puerto Rico Nuclear Center.

Results

Review of Health Center cases and interviews at Guilarte School showed that the patients seldom remembered the date of onset of their illness; thus it was not possible to accurately define the temporal course of the epidemic. The first cases were detected in mid-August and new cases continued to appear until February. The outbreak began slowly and declined in a similar fashion with small numbers of cases; moreover, most cases occurred before Christmas. Examination of the proportion of students absent from Guilarte School each day showed a broad peak in the number of absentees from late September to late November. Schools were kept under surveillance by the local health officials who discovered that although the disease spread to other "barrios" by December, no other school was affected to the same extent as Guilarte, nor did cases appear in epidemic proportions from any other barrio.

As more children were seen and the nature of the exanthem clarified, the diagnosis of erythema infectiosum was established. The characteristic pink, macular, confluent rash was present, usually more prominent on the arms than on face, neck, or trunk. Typical circinate, morbilliform and geographic variations were frequent (Fig. 1). The children emphasized to the



Fig. 1: *Lace-like pattern of the exanthem in a 12-year old boy from Adjuntas.*

From the Tropical Disease Section, Ecological Investigations Program, and the State Services Section, Epidemiology Program, of the National Communicable Disease Center, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare, San Juan, Puerto Rico; The Adjuntas Health Center, Puerto Rico Department of Health; and the Puerto Rico Nuclear Center, Río Piedras, Puerto Rico.

TABLE I: ERYTHEMA INFECTIOSUM BY GRADE IN GUILARTE SCHOOL ADJUNTAS, 1967

Grade	No. Enrolled	No. Present	No. Affected	Attack Rate (Percent)*
Kindergarten	20	15	13	87
1	42	37	6	16
2	40	30	13	43
3	43	34	16	47
4	38	28	11	39
5	47	37	11	30
6	38	29	7	24
Unknown	---	---	1	---
Total	268	210	78	37

** For those present*

TABLE II: ERYTHEMA INFECTIOSUM AND ABSENTEES BY AGE AND SEX IN GUILARTE SCHOOL – ADJUNTAS, 1967

Age	Cases			Absentees		
	Male	*Female*	*Total*	*Male*	*Female*	*Total*
4-5	6	7	13	4	4	8
6-10	19	27	46	7	19	26
11-15	9	10	19	11	13	24
Totals	34*	44*	78	22	36	58

** - 92 girls and 118 boys present.*

interviewers that the rash was evanescent, and in several cases the exanthem appeared (or disappeared) during the interviews. Reddening of the cheeks occurred, but not prominently so. Sunlight seemed to be the main provocative factor in recrudescence, but particularly interesting were many recurrences following the mass smallpox vaccination campaign in Adjuntas in the spring of 1968. None of the children was seriously ill, and most stayed out of school for only one or two days when the rash made its initial appearance.

Other symptoms such as fever, headache, stiff neck, myalgias, arthralgias, and diarrhea were specifically asked for, but except for mild fever or headache, none were detected. No lesions were observed on the buccal mucosa.

Data gathered from the Guilarte School investigation on November 15th (Table I) showed an overall attack rate for students present of 37 percent, with the only marked deviation from this value in the kindergarten and first graders.

Table II shows the cases and absentees by age and sex. It can be seen that 44 of the 92 girls present (48 percent) were affected, whereas only 34 of the 118 boys present (29 percent) gave a positive history. Surveillance data from 48 cases seen at the Health Center confirm an apparent sex difference since 28 of these were females.

At the Guilarte School most cases occurred in the 6 to 10 year-old age group. None of ten teachers at the school was ill. A few adult cases were discovered

by surveillance at the Health Center although a marked predominance in younger age groups was still apparent (38 of 48 cases were less than 15 years of age).

At the school, those children reporting illness were questioned regarding the number of family members who were ill. There had been 102 cases of rash in 435 other family members (Table III), for an attack rate of 23 percent in this group from August to mid-November. In 55 of the affected family members in whom age could be determined, 41 (75 percent) were ten years of age or less, and only two adults were reported to have the rash.

During December, ten affected children submitted throat and rectal swabs on dry ice for viral isolations 1 to 14 days after the rash appeared. No viral activity was observed when material was inoculated into suckling mice, and no cytopathic effects were noted in a single passage through a Rehsus monkey kidney tissue culture system.

TABLE III: ERYTHEMA INFECTIOSUM IN FAMILY MEMBERS AND TEACHERS, GUILARTE SCHOOL, ADJUNTAS, 1967

	Total	Affected
Family Members	435	102 (23 percent)
Teachers	10	0

Discussion

Tschamer (1) gave the first report of an epidemic of erythema infectiosum in 1889, and he felt it to be a localized form of rubella. When the childhood exanthema were numbered in the early 1900's, erythema infectiosum was called "fifth disease", currently the alternate name most commonly used. Various colorful terms used in descriptions of the exanthem further emphasize certain aspects of the rash, for example, epidemic megalerythema, large spotted disease, and sunshine rash. Other descriptions (2, 3, 4) emphasize the relatively benign nature, the acute onset with intermittent rash, and the skewed age distribution of this peculiar exanthem.

Incubation period is felt to be five days (3, 5), during which the only symptom may be mild fever. Whether the disease is spread by direct contact or another route is unknown. Onset is usually sudden, marked by appearance of malar flush and an exanthem which is most prominent on the extremities, chest, and neck. The rash is usually lace-like, but may appear in a variety of patterns such as were observed in the Adjuntas epidemic. A hallmark of "fifth disease" is the tendency of the rash to fluctuate in intensity and pattern over the short term (hours) and over the longer term (weeks). The rash may disappear and reappear frequently with surprising abruptness, as noted during interviews at the Guilarte School. Reappearance is often after stressful stimuli, most characteristically exposure to sunlight. Fever, usually mild, is the only consistently reported symptom which accompanies the rash, although mild constitutional symptoms are not infrequent. When adults are affected, they may experience mild arthritis in large joints (5). Because of lack of severe symptoms, the disease is usually not recognized except in epidemic situations.

Clinical descriptions of this disease invariably place great emphasis on the variability of the rash. When cases are seen, a large number of childhood diseases enter into the differential diagnosis. We considered rubeola, rubella, enteroviral exanthematous disease, scarlet fever, infectious mononucleosis, and drug reactions when confronted with the initial cases. Careful questioning for prodromal symptoms, gastroenteritis, headaches, or neurologic symptoms, in addition to physical examination with particular attention to the conjunctiva, buccal mucosa, lymph nodes, joints, and abdomen, was necessary to eliminate the other diagnostic possibilities. Negative laboratory data added to the diagnostic confusion, and it was only after the bizarre nature of the rash and its frequent reappearance were noted that the diagnosis was made and subsequently supported by the epidemiologic investigation.

Children are more often affected than adults and secondary attack rates in families may reach 30 percent. No diagnostic features are present on skin biopsy; moreover, there are no diagnostic laboratory tests, as no etiologic agent is known. Ager and co-workers (5) conducted an exhaustive search for viruses using a variety of isolation techniques, but failed to isolate a causative agent.

This investigation is the first report of the occurrence of erythema infectiosum in the tropics and its characteristics were essentially the same as in temperate climates. Slow development and decline of the epidemic, the age specific nature of the illness, and the

clinical features in Adjuntas were very similar to previously reported outbreaks.

The sex distribution favoring females observed in Adjuntas has not been previously observed so strikingly, although Ager noted more female cases in Port Angeles (5). In a large outbreak from Johnson County, Kansas, Chin and Doto (6) reported 443 cases from 5568 females and 381 cases from 5572 males surveyed ($p.05$). Although the sex differential in the Adjuntas outbreak is significant at the 5 percent level using the X^2 test, it remains to be seen whether some aspect of the disease process or some feature of the investigative methods accounts for this finding (for example, that girls are more willing to participate in such studies). The markedly higher attack rates in kindergarten through November may indicate that the outbreak began in that classroom, or that these children have more opportunity for personal contact in the playroom situation.

Age data are available for the sick children, but not the unaffected population. It is felt that the observed age distribution of cases probably reflects the age distribution of the Guilarte school children, even though the absentees were somewhat older than the cases.

It is not known which factors are the most important for the localization of such an outbreak to a limited area such as Barrio Guilarte. Although the "barrios" of Adjuntas are physically separated one from another, people from different "barrios" visit each other occasionally, mingle in the urban market area, and ride tightly packed together in "públicos". Thus, it seems remarkable that the disease remained confined to Guilarte for five months before significant spread occurred, and then only in limited, non-epidemic fashion. Reasoning from the behavior of known infectious diseases, one would be tempted to say that nearby "barrios" were immune because of previous exposure, but the disease certainly has not been diagnosed previously in Adjuntas. Perhaps previous widespread subclinical infection accounts for the apparent immunity, but then why did so many clinical cases appear this year in Guilarte? One must certainly await the appearance of a diagnostic laboratory test before speculating safely in this area.

Considering the previously reported inability to observe evidence of viral activity in a variety of tissue cultures (5), it is not surprising that such was not observed in our mice or tissue culture systems.

Summary

From August 1967 to March 1968, an outbreak of erythema infectiosum occurred in Adjuntas, Puerto Rico. Clinical features of the illness were classical although reddened cheeks did not occur as prominently as in previously reported episodes. The exanthem observed was characteristically pink, macular, geographically demarcated, of long duration, and in many cases recurrent over a period of months. Except for a few cases with mild fever or headache, the rash was not preceded or accompanied by other symptoms. The outbreak was confined for five months at Barrio Guilarte, and when extension to adjacent regions took place, no epidemic surge of cases was detected. Children were affected in striking contrast to adults, and a significantly greater number of girls than boys were affected. Material from rectal and throat swabs from ten patients was inoculated into suckling mice and monkey kidney tissue cultures, but no viral activity was detected.

Resumen

Un brote de "erythema infectiosum" (la Quinta Enfermedad) surgió en Adjuntas, Puerto Rico entre agosto 1967 y marzo 1968 con un ascenso y disminución lento. El cuadro clínico de la enfermedad fue típico, aún se notó menos enrojecimiento de las mejillas que en informes previos. La erupción era característicamente rosada, macular, marcada geográficamente, de larga duración y en muchos casos fue recurrente durante unos meses. El brote estuvo restringido por cinco meses al Barrio Guilarte, y cuando se propagó a otras regiones, no alcanzó niveles epidémicos. Comparativamente, los adultos estuvieron menos afectados que los niños, y las hembras estuvieron más afectadas que los varones.

Muestras del recto y de la garganta de diez casos fueron inoculados a ratoncitos en estado de amamantamiento y cultivos de riñones de mono, pero no se identificó evidencia de virus.

References

1. *Tschamer, A.:* Uber ortliche Rotheln. Jahrb. f. Kinderh. 29: 372, 1889. As cited by Ager *et al* (5).
2. *Wadlington, W. B.:* Erythema infectiosum, J. Am. Med. Assoc. 192: 144, 1965.
3. *Greenwald, P. and Bashe, W. J., Jr.:* Epidemic of erythema infectiosum. Am. J. Dis. Child. 107: 30, 1964.
4. *Grimmer, H. and Joseph, A.:* Epidemic of infectious erythema in Germany. Arch. Derm. 80: 283, 1959.
5. *Ager, E. A., Chin, T. D., and Poland, J. D.:* Epidemic erythema infectiosum. New Eng. J. Med. 275: 1326, 1966.
6. *Chin, T. D. Y., and Doto, I.:* Unpublished data.

COMPREHENSIVE STATEWIDE PLANNING, A REHABILITATION BLUEPRINT FOR 1975

Anthony S. DeSimone

It's a very real pleasure to be here with you in Puerto Rico. Miss Switzer, Administrator of the Social and Rehabilitation Service, was unable to be here but she has asked me to extend her personal greetings and fond affection to all of you.

This first visit to Puerto Rico is especially meaningful to me since President Nixon reorganized the Federal regions thereby adding Puerto Rico and the Virgin Islands to Region II. I look forward to working with you in bringing rehabilitation services to those who need them in this part of the Caribbean.

In the New York Regional Office we almost feel as though Puerto Rico is now a part of the region, for so many Puerto Ricans have come to our region to live. I hope in time to gain a better understanding of Puerto Rico and its people and to share this knowledge with the rehabilitation agencies in New York and New Jersey where many people of Puerto Rican extraction have established residence.

I am honored by your planning committee to address you on the subject of "Comprehensive Statewide Planning, A Rehabilitation Blueprint for 1975." Good planning is the key to the successful achievement of any goal and when your goal is returning disabled people to productive, meaningful lives, good planning to achieve that goal is very important. The 1965 amendments to the Vocational Rehabilitation Act set the goal of providing rehabilitation services to all who need them by 1975. As you know, two-year grants were made available to every state and territory to undertake a comprehensive planning effort covering the entire rehabilitation picture in the respective States.

In undertaking comprehensive statewide rehabilitation planning, the States were charged to:

1. Find out the nature and extent of disability within them.
2. Learn how the needs of the disabled people are being met *now* by both the public vocational rehabilitation program and by private agencies.
3. Obtain a realistic view of what the needs will be in the field of rehabilitation by 1975 and how they can be met.
4. Propose the major steps that will be taken so that by 1975, all disabled people who need help will find it available.

This mammoth task is being done in varying ways from State to State. However, in every case it involves many hundreds (sometimes thousands) of citizens working together to form a practical prescription for meeting the needs of their handicapped fellow citizens through such methods as better coordination among existing agencies and, through various means, increasing services and improving service delivery systems.

Many citizen's groups have been formed to study various areas of disability in detail. In Puerto Rico, you have been studying what needs to be done in such areas as cancer, mental retardation, epilepsy, leprosy, tuberculosis, mental health, psycho-social problems, rehabilitation facilities and architectural barriers, blindness, deafness and hard of hearing, legislation and financing, and personnel and training.

As of March 31, 1969, 32 comprehensive statewide plans had been completed and final reports had been received from 21. By December 31st, it is expected that all the plans will be completed and final reports received in Washington, D. C.

This effort to see where we are in rehabilitation, where we want to be by 1975, and how we can plan to get there, is a national one. Its success is imperative if the disabled and disadvantaged in the country are not to be ignored.

At the National Citizens Conference on Rehabilitation of the Disabled and Disadvantaged which was held in Washington, D. C., in June, a preliminary report giving some highlights of 14 final comprehensive statewide planning reports was presented. These highlights cannot be regarded as indicating what the final nationwide summary will look like — differences in interpretation, local conditions, and other factors will have to be considered, but some of the findings to date would indicate that:

a) At least 5 percent and maybe 30 percent of the population of the United States is disabled in some

way.

b) Between 1 percent and 10 percent are both disabled and eligible for vocational rehabilitation services.

c) The present total client caseload of about 570,000 can be expected to reach 3.2 million by 1975.

d) Counselor caseloads in individual States may increase between 200 percent and 800 percent by 1975.

e) Many State vocational rehabilitation agencies may increase their staff 2 to 4 times over to cope with the projected 1975 caseload.

f) A total of 25,000 vocational rehabilitation counselors may be needed in 1975 — versus the 5,000 existing in 1967.

g) Total dollars needed for vocational rehabilitation in 1975 may be as high as $2.4 billion — versus the expected Federal appropriation for this year of $471 million.

Even these preliminary findings, rough as they are, indicate that we have a tremendous task ahead. It is important to all of us that this challenge be met! The process of rehabilitation means so much to all of our people. Everyone benefits from rehabilitation. We need to bring in all disabled, disadvantaged people living outside the mainstream of life; there is a healthier, more vital economy with more of the people contributing to it and participating meaningfully in it; dependency on welfare benefits is reduced and so is juvenile delinquency and crime.

Of one thing we can be certain, the job of rehabilitation is too big to be done alone by one agency. On the Federal level the creation of the Social and Rehabilitation Service is a reflection of the need to bring together all of the human services available to serve the manifold needs of people. Vocational rehabilitation has long recognized this need in providing services to people by developing cooperative relationships with other public agencies such as welfare, the employment service, aging, education, health, and other public agencies. Further relationships with private non-profit voluntary agencies and industry is critical to the expansion of the vocational rehabilitation program. On the mainland, vocational rehabilitation agencies are spending over one-third of their case service budget in voluntary workshops and rehabilitation centers which were established or expanded through Federal grants in many instances under the Laird provision. This provision permits private contributions to be used for matching Federal funds. In this way many Federal dollars are utilized by the mainland States who do not have sufficient State appropriations much as it occurs in Puerto Rico. If private funds could be found then Federal dollars could be put to work for Rehabilitation facilities and workshops where they are needed most.

We must realize that rehabilitation no longer involves merely serving the physically disabled — and it hasn't for some time! With the broadening of the Federal-State vocational rehabilitation program under the 1965 and 1968 amendments to the Vocational Rehabilitation Act our legitimate concern — rehabilitation services are extended to the socially and culturally deprived. When the Vocational Evaluation and Work Adjustment Program is founded we will have a real opportunity to work with people who are disadvantaged in their ability to secure or maintain suitable employment because of not only physical or mental disability but also advanced age, youth, low educational attainment, ethnic or cultural factors, prison or delinquency records, or any other condition, *especially in association with poverty.*

Of course we in serving the disabled, have been serving the disadvantaged for a long time. Studies such as the Health Interview Survey of the National Center for Health Statistics conducted in 1965 and 1966 have demonstrated that there exists a higher prevalence of activity limitation and disability among the lower economic group. It has been said, in fact, that the incidence of disability among the poor is as much as six times as great than it is among the middle class and affluent.

By providing help and services to the disabled and the disadvantaged, we can help to upgrade the quality of life for every citizen in the Commonwealth. Everyone will benefit for our having made the effort.

The 1968 Vocational Rehabilitation Act Amendments require that State VR agencies provide for adequate staff with appropriate qualifications to carry out continuing statewide studies of the needs of handicapped individuals in the State and the means by which these needs may be most effectively met. The concept of statewide studying, reviewing, and planning is now a permanent part of the rehabilitation process — and, indeed, a very welcome one. The regulations also require that advisory committees, representing labor, management, medical and health related organizations and institutions, public and voluntary agencies, civic groups and, very significantly, the disabled themselves, shall be utilized by the State agency program planning staff in conducting statewide planning studies. At least one-third of the membership of such advisory committees must be disabled people. This is our answer to

the National Citizens Advisory Council report that stated "Millions of our citizens today are living on the fringes of our society because they are the victims of a serious handicap. They remain there because we, as citizens and as a nation, never have gotten disturbed, or angry, or determined about it . . . " The evaluation of comprehensive statewide planning reports to identify trends, strengths, weaknesses, and so forth, is being conducted under a Social and Rehabilitation Service contract by Harbridge House, Inc., a management consulting firm. Harbridge House will develop guidelines for implementation in the States of the recommendations in the reports. They will help the States make sure that:

1. Recommendations developed by the citizens' groups are followed through and that there is a continuing assessment of the recommendations in light of changing needs.
2. There continues to be cooperation and coordination with other planning activities such as Comprehensive Health, Comprehensive Manpower Planning Systems (CAMPS), and others as well as Model Cities, Neighborhood Service and similar efforts. Without this, services to the disabled are fragmented and ineffective.
3. There be continued citizen participation including again, that of the disabled themselves.

The momentum gained by the critical, constructive study and review of our efforts in the field of rehabilitation and by so many people working together to improve our programs must not be lost! The trend today is toward increased participation by *people* in the governmental process and in the development of policies affecting the people. Not the least of the helpful consequences of the planning efforts has been the fact that several thousand people of prominence and influence, who were actively involved in the projects, have learned a lot about rehabilitation and have become enthusiastic supporters of programs that serve disabled people. Participation breeds interest and support!

I've had the opportunity to read a preliminary report of your efforts here in the Commonwealth of Puerto Rico and I want to commend you for it. The interest of so many citizens in the progress of the rehabilitation program here is indeed encouraging. I was especially glad to see the coordination of your efforts with those of the Virgin Islands and your cooperative discussions with the Dominican Republic, and other nations, in order to learn from each other and improve the rehabilitation program throughout the Caribbean.

I cannot urge too strongly that you maintain your interest and efforts. It's so important that we aspire to provide the best possible rehabilitation services to those who need them most and programs like vocational rehabilitation have, in cooperation with other agencies, proven themselves. We know that the end result of the rehabilitation process is that people are put back to work. Lifetimes of dependency, despair, and hopelessness are turned into lives full of meaning – a sense of participation.

In the words of the National Citizens Advisory Committee on Vocational Rehabilitation, "Regardless of the administrative or legislative format that may evolve to insure interagency coordination and to support programs, the principle of 'the right service, in the right manner, from the right person at the right time' must prevail. On this point we are convinced that the vocational rehabilitation approach is the best yet devised for helping people to help themselves. Provision of comprehensive services "to meet unique individual needs through a person-to-person relationship is far superior to mass or 'class' approaches. It takes people to help people. We hope this time-tested method of serving the disabled is not only continued, but vastly expanded."

In conclusion, I would like to speak to you in your native tongue with respect and with humility, for clear communication is a way of reaching the hearts and souls of all men and women and in rehabilitation it is the heart and soul that is affected. All of us would not be here today if we did not believe that every one has a right to develop to his full potential, be he handicapped by disability or disadvantaged because of social, economic, racial, education or religious reasons. This philosophy is reflected in the rehabilitation process of building individual vocational plans taking into account medical, social, psychological and vocational factors. Most of all it involves the client in the planning process so that he is a partner in developing his own future.

The Commonwealth of Puerto Rico can be proud of the many accomplishments of the vocational rehabilitation program under the direction of Mr. Domingo Collazo and his staff.

It is now however on the threshold of expansion on behalf of those disabled disadvantaged citizens who now are not being reached. This is why we do planning, this is why you as citizens planners are participating and giving of your time and effort, not for yourself but for the sake of others. What better

philosophy of life is there than to want to help your less able brother help himself.

Let us leave this conference today rededicated to these ideals, then let us use the statewide plan to its fullest extent.

Let us begin the task ahead with vitality, the spirit of cooperation and the continued concern of every citizen. Let us begin.

En conclusión me gustaría hablarle a ustedes en su idioma con respeto y humildad, porque una comunicación clara es un modo de alcanzar los corazones y almas de todos los hombres y mujeres, y en cuanto a rehabilitación es el corazón y el alma las afectadas. Ninguno de nosotros estuviéramos aquí hoy si no creyéramos que cada uno de nosotros tiene el derecho de desarrollar sus potenciales, sea el impedido o inhabilitado por causa social, económica, racial, educacional o religiosa. Esta filosofía se refleja en el proceso de rehabilitación de construir planes vocacionales para cada cliente llevando en cuenta los factores médico, social, psicológico y vocacional. Sobre todo envuelve al cliente en el planeo para que así sea él su compañero en construir su futuro.

El Estado Libre Asociado de Puerto Rico puede estar orgulloso de la buena ejecución del programa de rehabilitación vocacional bajo la dirección del señor Domingo Collazo y sus asociados.

Sin embargo, es ahora la expansión esencial a favor de todos los ciudadanos impedidos quienes ahora no pueden ser alcanzados.

Es éste el por qué planeamos, es éste el por qué ustedes participan dando su tiempo y esfuerzo, no para ustedes mismos sino para el mejoramiento de otros. Qué mejor filosofía de la vida que querer ayudar a su hermano incapacitado ayudarse él mismo.

Salgamos hoy de esta conferencia dedicándonos a estos ideales, entonces usemos este proyecto al completo alcance.

Empecemos adelante esta tarea con vitalidad, el espíritu de cooperación y el contínuo interés de todos los ciudadanos.

¡Vamos a empezar!

XI CONGRESO PANAMERICANO DE GASTROENTEROLOGIA

HOTEL P. R. SHERATON

Octubre 26 a Noviembre 1, 1969

CONGENITAL FACTOR XIII DEFICIENCY/
Report of Two Cases

Jean Fradera, BS, MT
Jenaro Haddock, MD
E. Pérez-Santiago, MD
Norman Maldonado, MD

In 1948 Laki and Lorand reported the presence in plasma of a substance which made fibrin clots insoluble in urea (1). Enzymatic activity was attributed to this substance (2) which is now known to circulate in an inactive form and to require thrombin for its activation (3). In 1963 it was accepted as one of the plasma clotting factors and among the many names given to it are: fibrin stabilizing factor (4), the Laki-Lorand factor (5), fibrinase (2) and factor XIII (6) and plasma transamidase (7).

In 1960 Duckert *et al* reported the first clinical observation of a hemorrhagic disorder due to factor XIII deficiency (8). Since then, several reports have been published of isolated and familial occurrences of this disorder. We have observed two unrelated patients with this deficiency. One of our patients was a male with severe disease and the other is a female with only mild manifestations. These patients are the first of Latin American ancestry to be described in the literature. We have studied the immediate family members of both patients, which allows us to speculate about the mechanisms involved in the inheritance of this disease.

Case Reports

Case 1:

A 21-year old mulatto man had been admitted to the University Hospital on many different occasions because of hemorrhagic manifestations. He was born a twin and suffered profuse bleeding following the fall of the umbilical cord. Easy bruising was noted during childhood. At age 7 he was hospitalized at another institution with severe abdominal pain and at exploratory laparatomy a retroperitoneal hematoma was found. He had four episodes of intra-abdominal bleeding at ages 11, 15 (twice) and 16 years. Intramuscular hemorrhages affecting both legs and his right forearm occurred at ages 16 and 19 years. He has suffered two episodes of hematuria, the first at age 19 and the second during this past year. He suffered three episodes of hemarthroses at ages 9, 14 and 20 years. He was confined to a wheel chair, but X-Rays of the knees have showed only osteoporosis and no residual changes such as those seen in classical hemophilia. At the age of 22 years he developed a severe abdominal pain and was hospitalized with what seemed to be a massive retroperitoneal hemorrhage. He received several blood transfusions but did not improve and died in congestive heart failure. An autopsy was not performed.

Family History

The patient's father and mother are not related and enjoy good health. His two brothers (one was his twin*) had severe hemorrhages following the fall of the umbilical cord and showed easy bruising. His twin brother died of pneumonia at age 3 years and the other brother died shortly after the onset of a severe headache, at age 7 years. His three sisters are living and well. He had one maternal uncle who was a bleeder and who died after a fall.

Case 2:

This seven-year old girl was first admitted to the University Hospital when she was 1 1/2 year old with a large hematoma on the head and ecchymoses of the left periorbital region. The patient was born after an uneventful full term pregnancy. Eight days after birth she bled spontaneously from the umbilical stump and the bleeding was severe enough to require hospitalization and blood transfusions. The patient had frequent ecchymoses. At the age of 7 months, she developed a hematoma of the scalp, epistaxis and bleeding from the left ear. Two days prior to her last hospital admission she developed a large hematoma over the left parietal region and an ecchymosis of the left upper eyelid. On physical examination, except for the scalp hematoma and the ecchymosis, there were no other positive findings. During the last five years she has had easy bruising and one episode of gross hematuria. Recently she has undergone dental extractions following the infusion of fresh plasma without any complications.

Family History:

The parents are first cousins. There is no history of hemorrhagic diathesis in distant or close relatives. The patient has one sister and one brother in good health.

From the Hematology Section, Department of Medicine, University of Puerto Rico School of Medicine, San Juan, Puerto Rico. *This study was supported by NIH Hematology Training Grant No. T1 AM 5302-06.*

** It could not be documented if this twin brother was an identical or fraternal twin.*

TABLE I: LABORATORY FINDINGS

Tests	Case 1	Case 2	Normal Values
Bleeding time (Duke)	3 minutes	2 minutes	1 - 5 minutes
Platelet count (Phase)	364,000/mm^3	391,000/mm^3	150-550,000/mm^3
Platelet morphology	Normal - clumped	Normal - clumped	Normal - clumped
Platelet factor 3 (TGT)	Normal	Normal	100 percent generation during first 6 minutes
Clotting time (Lee-White)	10 min. - 30 sec.	11 minutes	6 - 14 minutes
Clot retraction	++	+++	++++ after 24 hours of incubation
Clot evaluation	Fragile clot, Increased fall-out of cells	Fragile clot and striking fall-out of cells	Compact, difficult to break. Slight fall-out of cells.
Tourniquet test	Negative (twice)	Negative	Negative
Euglobulin lysis test	Over 120 minutes	Over 120 minutes	Over 90 minutes
Prothrombin time (plasma)	13.8 sec.	13.8 - 14.4 sec.	12 - 14 sec.
Prothrombin time (serum)	47 sec.	43 sec.	Over 20 sec.
PTT (Kaolin)	37.0 sec.	42 sec.	30 - 45 sec.
T. G. T.	Normal generation	Normal generation	100 percent generation during first 6 minutes
A. H. G. conc.	105 percent	92 percent	60 - 200 percent
P. T. C. conc.	120 percent	110 percent	60 - 150 percent
Labile factor conc.	110 percent	100 percent	60 - 140 percent
Fibrinogen	560 mg percent	720 mg percent	200 - 400 mg percent

Methods

The laboratory methods used in the evaluation of the two cases included the following conventional tests: bleeding time (Duke & Ivy), tourniquet test (Rumpel-Leed), platelet count (phase microscope), Quick prothrombin time and the euglobulin-lysis test (9). A Wright-stained peripheral blood smear was used for the morphologic evaluation of the platelets. The partial thromboplastin time was performed as described by Proctor and Rapaport (10) and the thromboplastin generation test using the method described by Biggs and Douglas (11). Specific assays of factor VIII and factor IX were done as described by Hardisty and Macpherson (12). The factor V concentration was determined using the original technique of Quick and Stefanini (13). A modification of the thromboplastin generation test was used for the determination of platelet factor III activity. The urea solubility test was performed as described by Josso (8). In this method 0.2 ml of oxalated plasma is diluted with 0.1 ml of veronal buffer pH 7.35 and recalcified with 0.2 ml of Ca Cl_2 0.025M and the fibrin clot obtained is incubated for 30 minutes at 37°C. After incubation 3 ml of 5 M urea is added to the clot and observed for dissolution for 24 hours. The remaining clot is graded according to its size from ++++ to 0. Using this same technique, 1 percent monochloracetic acid was used as solvent instead of 5 M urea (14).

The family members of both patients were evaluated by two different techniques: the one described by Josso *et al* (8) and the method used by Hampton (15). The first method studies the *in vitro* correcting power of the diluted plasma of the different family members on the solubility in 5M urea of a defective soluble clot. Hampton's method uses a clot obtained by mixing plasma in 1:10 dilution, fibrinogen and thrombin solution (Parke & Davis). This clot is immersed in 5M urea and observed for complete dissolution for 100 hours. According to the time of dissolution obtained the different plasmas were graded as low, intermediate or normal concentration of factor XIII. Clots which dissolved in less than 5 hours were considered to have low activity; between 24-100 hours were classified as intermediate and more than 100 hours as normal.

Results

The results of the coagulation studies of both patients are shown in Table I. The only abnormality detected in both patients was that after clot retraction occurred, an increased fall-out of cells was observed. When the whole blood clots were evaluated they were found to be very fragile as compared with normal ones. In the urea solubility test of the first patient, the fibrin clot was completely dissolved in 5M urea in 30 minutes while in Case 2 it took 180 minutes. The fibrin clots of both patients were also soluble in 1 percent monochloracetic acid. A fibrin clot

TABLE II: CORRECTIVE POWER OF THE RELATIVES' PLASMAS ON CASE 1 – UREA SOLUBILITY TEST

Dilutions	Undiluted	1:2	1:4	1:8	1:16	1:32	1:64
Controls (6)	++	++	++	++	++	+	+
Father	++	++	+	---	---	--	--
Mother	++	++	++	++	+	--	--
Sister (1)	++	++	++	++	+	--	--
Sister (2)	++	++	++	++	++	+	--
Sister (3)	++	++	++	++	++	--	--
Nephew	++	++	+	----	----	--	--
Niece	++	++	++	++	+	--	--

TABLE III: CORRECTIVE POWER OF THE RELATIVES' PLASMAS ON CASE 2 – UREA SOLUBILITY TEST

Dilutions	Undiluted	1:2	1:4	1:8	1:16	1:32	1:64
Control	++	++	++	++	++	++	+
Father	++	++	++	++	++	+	--
Mother	++	++	++	++	++	+	--
Sister	++	++	++	++	++	++	+
Brother	++	++	++	++	++	++	--

obtained by the mixture of both patients' plasma was also soluble in urea proving the fact that both patients had the same defect. Both patients' fibrin clots were rendered insoluble when normal plasma was added. None of the patients' clots were rendered insoluble in urea by the addition of 0.1 ml of 0.1M cysteine to the urea solubility test system which eliminates the possibility of an inactive form of factor XIII (16).

Using the method described by Josso, two male members of Case 1's family were found to be carriers (Table II). The mother, sisters 1 and 3, and the niece showed decreased corrective power as compared to the control. None of the members in the family of Case 2 was found to be a definite carrier (Table III).

Using the method described by Hampton, in Case 1's family there were 3 members - the father, a niece and a nephew - with intermediate activity. None of these relatives have had bleeding episodes. In all the members of Case 2's family the concentration was normal. Both patients showed low activity using this technique.

Discussion

Fibrin formation is the end point of the clotting process. The biochemical reactions leading to fibrin formation are well understood. Thrombin, acting as an enzyme, disrupts argynil-glycine bonds to split a highly charged peptide from the fibrinogen molecule (17). Thereafter, the fibrin monomer polymerizes independently of the presence of thrombin. This polymer is rendered insoluble by thrombin activated factor XIII in the presence of calcium ions (18). Factor XIII makes fibrin clots more resistant and durable by reinforcing the weak inter-molecular hydrogen bonds between the monomers of fibrin.

Deficiency of factor XIII may be either congenital or acquired. Congenital deficiency is quite rare. Acquired deficiency has occurred in various forms of liver disease (19) and in certain hematologic con-

ditions such as acute and chronic granulocytic leukemia, hypofibrinogenemia and multiple myeloma (20, 21, 22, 23). The acquired deficiency may be due to the factor occurring in an inactive form or to the presence of an inhibitor. Integrity of liver function seems necessary for normal activation of the factor and for removal of its inhibitors. This acquired deficiency is corrected *in vitro* by the addition of cysteine and this test serves to differentiate it from the congenital deficiency.

The congenital deficiency of factor XIII has been documented in 20 reported cases including the present report and mentioned in 11 other patients (24). There are 14 males and 6 females among the well documented cases. The disease is more severe in the males than in the females. All the females reported have had a history of consanguinity and no family history of bleeding disorders (24, 25, 26, 27). Among the 14 males there is a history of consanguinity in three (8, 28) and a family history of bleeding tendencies in five (28, 29). The patients reported have ranged in age from 14 months to 41 years.

Bleeding occurs early in life. The first hemorrhage followed the fall of the umbilical cord in all the reported cases except in one who was mildly affected and another who received blood prior to the separation of the umbilical cord (24, 30). Subsequent bleeding is always related to trauma. In almost all patients ecchymoses and hematomas are prominent features. Bleeding from mucous membranes and after dental extractions has occurred frequently. Intracerebral hemorrhage occurred in five patients (8, 28, 29, 31, 32) and was the probable cause of death of some male siblings including one sibling of one of our patients (24, 32). One previously reported patient (26) and both of our patients have had hematuria. Retarded wound healing is another characteristic of the reported patients, however, this has not been a feature in our two patients.

Factor XIII deficiency usually presents no therapeutic problem. The defect is corrected promptly by plasma or whole blood transfusions. Our two patients received blood transfusions with dramatic relief of symptoms in several occasions. In the severe case (Case 1) an episode of hematuria was first treated with plasma, but as it persisted an additional blood transfusion was given which corrected the defect immediately. However, during his last admission he had a massive retroperitoneal hemorrhage which required multiple blood transfusions and was complicated with heart failure and death. Unfortunately, an autopsy was not performed.

We have evaluated a third patient with factor XIII deficiency who has required massive transfusions for control of hematuria and severe gastrointestinal bleeding. We also have knowledge of a patient who has developed antibodies against factor XIII in whom blood transfusions are not effective. As it is known the platelets are rich in factor XIII and effective in correcting this defect; whole fresh blood transfusions are conceivable a better choice when dealing with a severe case.

The mode of genetic transmission of defective factor XIII has been generally accepted as autosomal recessive (28, 29). However, all the females reported so far (including ours) have been characterized by consanguinity (24, 25, 26, 27, 28). Recently, studies performed by Hampton (15) were compatible with the assumption that factor XIII deficiency is transmitted in the X chromosome like classical hemophilia and Christmas disease (15). However, these cases represent a different defect with a defective factor XIII rather than a deficiency (24).

In our two cases we have both genetic manifestations, a severe case in a male born from unrelated parents and a mild case in a female as a product of the marriage of first cousins. In the family of Case 2 no definite carriers were detected. In the family of Case 1 two males were found to be carriers. Four females are possible carriers, since their plasma was not able to correct the defect of soluble clots in dilution over 1:16. Barry and Delage (29) also considered as carriers the parents of a patient with a similar decrease in corrective power. Others have also detected both parents as carriers (8, 24, 27, 29) and in the cases reported by Lowosky the two fathers of two unrelated cases were found to be factor XIII deficient (35).

In our studies the variations in the carriers correlate well with the clinical findings of a more severe disease in homozygous males than in females. The finding of the father and his grandson as carriers is against a sex linked inheritance, as has been suggested by Ratnoff (36). We would like to propose that the mode of inheritance is that of an autosomal recessive gene with sex linked influence in which the additional X chromosome has a protective role. However, another alternative is that this disease can be inherited by two genetic patterns, different in males from females. Nevertheless, future observations and more specific quantitative factor XIII assays, as are now being performed by Lorand (37), in our families and in others will help to establish a definite mode of inheritance in this

deficiency.

Summary

Two unrelated patients with factor XIII (fibrin stabilizing factor) deficiency were studied. These patients are the first reported from Latin America. The male patient was a severe bleeder resembling classical hemophilia and his parents are unrelated. The female patient is the product of the marriage of first cousins and is a mild clinical bleeder.

Family studies detected 2 definite and 4 questionable carriers in the relatives of the male patient. The two definite carriers were males, his father and a nephew. No carriers were detected among the relatives of the female patient.

Our patients increase to 20 the worldwide documented cases of congenital factor XIII deficiency. Based on our laboratory studies, we propose that the mode of inheritance of this disease is that of an autosomal recessive gene with sex-linked modification or influence.

Acknowledgment

We are indebted to Dr. L. Lorand, Professor of Chemistry of Northwestern University for confirming the diagnosis in our patients and for reviewing the manuscript. We are also grateful to Dr. Enrique Vélez-García for his criticism of this paper.

References

1. *Laki, K. and Lorand, L.:* On the solubility of fibrin clots. Science 108: 280, 1948.
2. *Loewy, A. F., Junathan, K., Kried, R. and Wolfinger, H. L., Jr.:* Fibrinase. 1. Purification of substrate and enzyme. J. Biol. Chem. 236: 2625, 1961.
3. *Lorand, L. and Konishi, K.:* Activation of the fibrin stabilizing factor of plasma by thrombin. Arch. Biochem. Biophys. 105: 58, 1964.
4. *Lorand, L.:* Contribution to fibrinogen-fibrin problem: (fibrin stabilizing factor, F. S. F. In International Society of Hematology. Proceedings of the Third International Society of Hematology, Cambridge, England, August 21-25, 1950. Editorial Committee Carl V. Moore, editor in chief *et al.* New York, Grunne 1951, p. 407.
5. *Loewy, A. G. and Edsall, J. T.:* Studies on the formation of urea insoluble fibrin. J. Biol. Chem. 211: 829, 1954.
6. *De Vreker, R. A.:* Fibrin stabilizing factor (FSF). Thrombosis et Diath. Haemorrh. 13: 411, 1963.
7. *Loewy, A. G., Dahlberg, J. E., Dorwart, W. V., Jr., Weber, M. J. and Eisele, J.:* A transamidase mechanism for insoluble fibrin formation. Biochem. and Biophys. Res. Commun. 15: 177, 1964.
8. *Josso, F.:* Le déficit congénital én facteur ' stabilisant de la fibrine (facteur XIII) etude de deux cas. Nouv. Rev. Franc. d'Hemat. 4: 267, 1964.
9. *Buckell, M.:* The effect of citrate on euglobulin methods of estimating fibrinolytic activity. J. Clin. Path. 11: 403, 1958.
10. *Proctor and Rapaport:* The partial thromboplastin time with Kaolin. The Amer. J. Clin. Path. 36: 212, 1961.
11. *Biggs, R., Douglas, A. S.:* The thromboplastin generation test. J. Clin. Path. 6: 15, 1953.
12. *Hardisty, R. M. and Macpherson, J. C.:* A one stage factor VIII and its use in venous and capillary plasma. Thromb. et Diath. Haemorrh. 7: 215, 1962.
13. *Quick, A. J. and Stefanini, M.:* The concentration of the labile factor of the prothrombin complex in human, dog and rabbit blood. Its significance in the determination of prothrombin activity. J. Lab. & Clin. Med. 33: 819, 1948.
14. *Lorand, L.:* Fibrin clots. Nature.
15. *Hampton, J. W., Cunningham, G. R. and Bird, R. M.:* The pattern of inheritance of defective fibrinase (Factor XIII). J. Lab. & Clin. Med. 67: 914, 1966.
16. *Lorand, L. and Jacobsen, A.:* Studies on the polymerization of fibrin. The role of the globulin fibrin stabilizing factor. J. Biol. Chem. 230: 421, 1958.
17. *Lorand, L.:* Fibrinopeptide. New aspects of the fibrinogen fibrin transformation. Nature 167: 992, 1951.
18. *Loewy, A. G. and Edsall, J. T.:* Studies of formation of urea-insoluble fibrin. J. Biol. Chem. 211: 829, 1954.
19. *Ottaviani, P., Mandelli, F., Fontana, L. and Morelli, R.:* Comportamento del fattore stabillizzante fibrinico nele epatopie. Progresso Medico 21: 115, 1965.
20. *Lorand, L. and Dickenman:* Assay method for the fibrin stabilizing factor. Proc. Soc. Exptl. Biol. Med. 89: 45, 1955.
21. *Lorand, L.:* Properties and significance of the fibrin stabilizing factor in "Progress on Coagulation". Thromb. Diath. Haemorrh. Suppl. I, 7: 238, 1961.
22. *Nusshaum, M. and Morse, B. S.:* Plasma fibrin stabilizing factor activity in various diseases. Blood 23: 669, 1964.
23. *Weiss, H. J.:* Increase urea solubility of the blood clots in chronic granulocytic leukemia and its relation to the abnormal thromboelastogram. Acta Haemat. 30: 326, 1963.
24. *Britten, A. F. H.:* Congenital deficiency of factor XIII (fibrin stabilizing factor). Report of a case and review of the literature. Amer. J. Med. 43: 751, 1967.
25. *Mandelli, F.:* Sindrome emorragica da diffeto del fattore stabilizzante fibrinico di Laki c Lorand. Med. Clin. Sper. 13: 175, 1963.
26. *Fisher, S., Rikover, M. and Naor, S.:* Factor 13 deficiency with severe hemorrhagic diathesis. Blood 28: 34, 1966.
27. *Duckert, F.:* Les deficits congenitaux cn facteur stabilisant dc la fibrine. Nouv. Rev. Frac. d'Hemat. 5: 365, 1964.
28. *Duckert, F., Jung, E. and Schmerling, D. H.:* A hitherto undescribed congenital haemorrhagic diathesis probably due to fibrin stabilizing factor deficiency. Thromb. et Diath. Haemorrh. 5: 179, 1960.
29. *Barry, A. and Delage, J. M.:* Congenital deficiency of fibrin stabilizing factor. Observation of a new case.

New Eng. J. Med. 272: 943, 1965.
30. *Tsevrenis, H., Mandalaki, T., Chouliaras, C. and Tzimas, S.:* Etude d'un cas avec déficit congénital en facteur XIII (FSF) Thromb. et Diath. Haemorrh., 14: 325, 1965.
31. *Masure, R.:* Trouble congénital del hémostase associé a un déficit en facteur stabilisant la fibrine (F.S.F.) Hemostase 3: 119, 1963.
32. *Amris, C. J. and Raneck, L.:* A case of fibrin stabilizing factor (FSF) deficiency. Thromb. et diath. haemorrh. 14: 325, 1965.
33. *Lorand, L.:* Personal communication.
34. *Luscher, E. F.:* Thrombocytenfactorin Ergebn. Physiol. 50: 1, 1959.
35. *Losowsky, M. S., Hall, R. and Goldie, W.:* Congenital deficiency of fibrin-stabilizing factor. Lancet 2: 516, 1965.
36. *Ratnoff, S.:* Inheritance of fibrin stabilizing factor deficiency. Lancet 1: 25, 1968.
37. *Atencio, A., Urayama, I., Lorand, L. and Hsia, D. Y. Y.:* Genetic and diagnostic studies using a new assay for Factor XIII (FSF) Clin. Res. 27: 318, 1969.

C O N V E N C I O N A N U A L A M P R

Noviembre 4 al 8, 1969

Hotel San Juan

CASE REPORT

HYPERTHYROIDISM AND MYOCARDIAL INFARCTION

G. R. Martínez-Rovira, MD
Lillian Haddock, MD, FACP
Ryan Crenshaw, MD

The incidence of atherosclerotic heart disease in hyperthyroidism is believed to be much lower than in the general population (1, 2, 3). Although myocardial infarction and thyrotoxicosis are common disorders their simultaneous occurrence is considered a rarity. The aim of this publication is to present the case of a middle age female admitted to our University Hospital with an acute myocardial infarction associated with hyperthyroidism, rheumatic heart disease and xanthelasma. The pertinent world literature is reviewed.

Methods

The patient was studied in the Medical Ward of the University Hospital. Serum cholesterol was determined by the methods of Huang *et al* (4). Serum triglycerides were analyzed by the technique of Van Handel *et al* (5). Serum phospholipids were estimated by the method of Fisk and Subbarrow (6) and serum lipoproteins by chromatography and electrophoresis as described by Frederickson and his associates (7). Serum free fatty acids were estimated by gas chromatography (8). A glucose tolerance test was done with a 100 g oral load of glucose. Blood sugar was determined in the Technicon Auto Analyzer.

Case Summary

A 50-year old white woman was admitted to the Medical Service on January 14, 1968, complaining of severe, sudden, appresive substernal pain radiating to the left side of the neck. It was associated with nausea, diaphoresis and moderate respiratory distress. At the end of one hour she was still in acute distress and was brought to the Emergency Room.

The patient had been in apparent good health until three years ago when she underwent an abdominal hysterectomy for uterine myomata at another hospital, and was told to have a heart murmur. There were no cardiovascular symptoms until two years prior to this admission when she began to experience episodes of stabbing precordial pains. They were experienced about twice a week, lasting 2 to 3 minutes and subsiding with rest. Concomitantly she noticed dyspnea on exertion and easy fatigability. The patient sought no medical advice.

One year prior to admission, she developed unusual nervousness, excessive sweating, muscle tremors, enlargement of the thyroid gland and frequent palpitations. She was seen by a private physician who made the diagnosis of hyperthyroidism. The 24-hour radioiodine uptake was 52 percent (normal value: 15 to 45) and the T_3 resin uptake was 44 percent (normal value 28 to 35). A trial with antithyroid medication did not improve her condition remarkably and she was given 3.4 M.C. of radioiodine on April 3, 1967. Two subsequent visits three and six months afterwards to her private physician failed to show any evidence of hyperthyroidism. She was then lost to follow-up.

The patient recalled that she noticed the appearance of xanthelasma during the severe hyperthyroid state, just prior to radioiodine therapy. She claimed that the lesions did not change since she first became aware of them up to the present time, and that therapy has not altered them in any way. She denied having edema, orthopnea, paroxysmal nocturnal dyspnea, intermittent claudication, or syncope. There was no family history of diabetes. She did not recall ever having acute rheumatic fever or any episode of arthritis in her life. At the time of admission she had been off antithyroid medications for about 12 months.

Pertinent findings on physical examination included: blood pressure of 120/80 mm Hg, unilateral exophthalmos, xanthelasma, diffuse soft thyroid enlargement, fine tremors in both hands, warm sweaty skin and brisk deep tendon reflexes. There was no cardiomegaly to percussion. She had sinus tachycardia (120/min.), right ventricular accessibility, very loud first heart sound, a diastolic rumble at the apex and an opening snap. The lungs were clear. There was no hepatosplenomegaly nor peripheral edema.

The diagnosis of acute anterior myocardial infarction was confirmed by electrocardiograms (Fig. 1) and elevated serum transaminases. The serum protein bound iodine was 9.2 mg /100 ml. Other laboratory studies done included a normal glucose tolerance; serum cholesterol, 170 mg/100 ml; serum triglycerides, 144 mg/100 ml: serum phospholipids, 308 mg/100 ml; and normal serum lipoproteins and free fatty acids.

The valvular lesion seemed to be one of pure mitral stenosis by clinical and electrocardiographic criteria (Fig. 1), together with vectocardiogram (Fig. 2) and phonocardiogram (Fig. 3). Chamber analysis showed left atrial and some right ventricular enlargement.

She was treated with bed rest, sedation, analgesics and anticoagulation. For the hyperthyroidism she was started on propylthiouracil 600 mg daily. There were no complications during the four weeks that she remained in the hospital

From the Division of Endocrinology (Department of Medicine) University of Puerto Rico School of Medicine, San Juan, Puerto Rico.

This work was supported by NIH Research Training Grant T1 AM 5097-11.

and her recovery was satisfactory. There was no arrythmia or congestive heart failure at any time. She was clinically euthyroid at the time of discharge and was sent home on 300 mg daily of propylthiouracil.

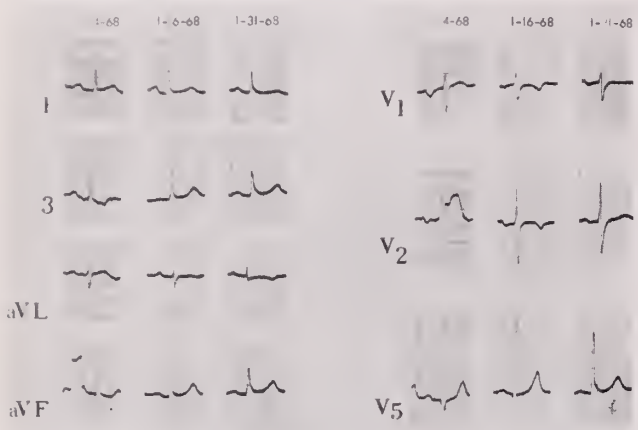


Fig. 1: *Electrocardiogram 17 days after admission. A prominent elevation of the ST segment is seen in V_2. Later on the T wave became inverted and finally upright. Changes in the T wave are also prominent in Lead I, AVL, and V_1.*

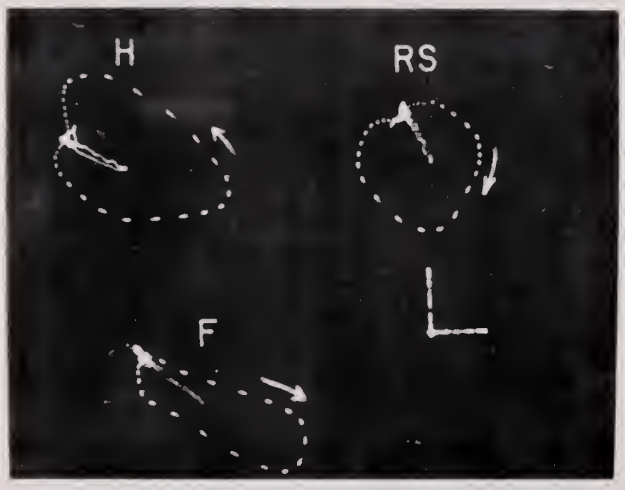


Fig. 2: *Vectorcardiogram using the Frank system was taken two months after admission. The anterior displacement of the loop suggests right ventricular hypertrophy.*

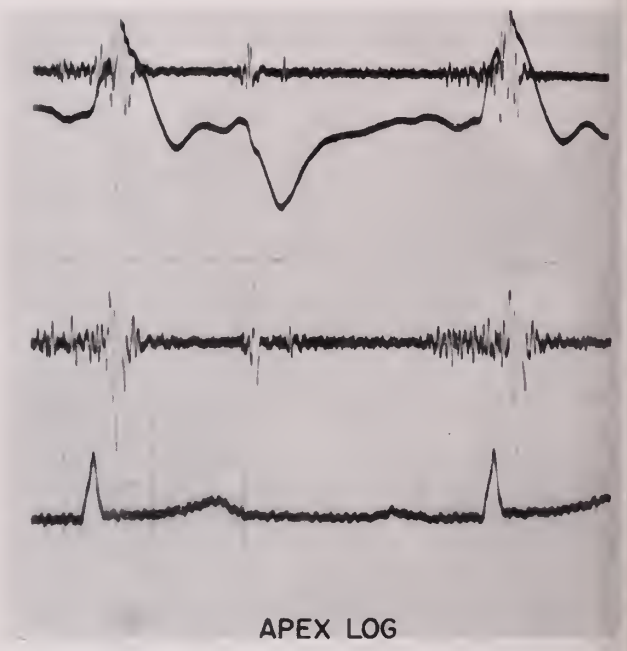


Fig. 3: *In the phonocardiogram taken at the apex one can clearly see: 1) a diastolic rumble with presystolic accentuation and ending in a loud 1st sound (1st sound seen immediately after ORS complex in lower tracing), 2) the opening snap following the second sound by 0.08 sec. (best identified in top tracing where it is seen coinciding with the lowest point of the apex cardiogram tracing).*

Discussion

Acute myocardial infarction in the presence of thyrotoxicosis is considered a rarity (1, 2, 3). Precordial or substernal pain has been reported in from 0.5 to 20 percent of patients with thyrotoxicosis (3). Although some of the patients with thyrotoxicosis and angina on effort have later died of myocardial infarction, as might be anticipated, Littman *et al* (2) could find only a report in 1957 of a patient who clearly had cardiac infarction during active thyrotoxicosis. They described three additional patients who showed the two disorders concurrently. The more recent survey of Burstein (3) added 11 more cases.

In 1960 Selenkow (9) made an excellent review of the subject. Gordon (10) in 1964 reported another case from Canada. A survey by Sandler and Wilson (11) reported 462 cases of thyrotoxicosis, of which 150 were judged to have some cardiac involvement; 21 patients (14 percent) gave a history of angina

pectoris. None of these patients developed frank myocardial infarction during the course of their thyrotoxicosis.

Several interesting reports were found upon reviewing recent Eastern European literature. Gurova (12) studied 364 patients suffering from thyrotoxicosis and found angina in 33 of them. Upon autopsy studies of 25 deceased patients from thyrotoxicosis (average age 53 years), the authors found that in 16 patients coronary atherosclerosis was absent, whereas in 9 it was present. Correlating these findings with the clinical pictures, they speculated that in patients with thyrotoxicosis the clinical and anatomical manifestations of atherosclerosis are less evident than usual and may be absent even in the seventh decade. The authors conclude that thyroid hyperfunction has thus a delaying effect on the development and progression of atherosclerosis.

In 1965 three (3) patients were described (13) in which myocardial infarction developed against the background of atherosclerosis of the coronary arteries preceding the toxic goiter. Kushelevskii and Gurova (14) point out that patients suffering from thyrotoxicosis and myocardial infarction manifest a number of specific features; in 6 out of their 7 patients, thyrotoxicosis developed against the background of pre-existing coronary atherosclerosis; autopsy data confirmed this impression in all of their patients. In the 3 deceased patients, notwithstanding the severe course of the disease, microfocal infarcts were noted in the absence of coronary thrombosis. They conclude that thyrotoxicosis is not conducive to the development of myocardial infarction even on the light of augmented activity of catecholamines and functional strain of the myocardium.

On the other hand, Biro (15) performed thyroid function studies in 15 hospitalized euthyroid patients with acute myocardial infarction in the first, third and sixth week after the infarction. During the first week in 12 of the 15 patients a considerable decrease in thyroid function was detected. He theorized that endogenous stress effect may be responsible for the decrease of thyroid function manifested during the first week post infarction. Rabb (16) stated that the catecholamines create conditions which favor atheromatous changes, and Oyster *et al* (17) and Brewster *et al* (18) suggest that thyroid hormones enhace the above mentioned effects of the catecholamines. The joint action of the catecholamines and the thyroid hormones on the calorigenic response has been recently pointed out by Brewster *et al* (18).

Another report (19) from Poland also emphasized the "protective effect" of excess circulating thyroid hormone against the development of acute myocardial infarction.

In a case published in 1965, Singh (20) concludes that it is only the most severe form of thyrotoxicosis which causes myocardial infarction as compared to the mild forms of the disease leading to angina pectoris or coronary insufficiency. However, Friedberg (21) believes that a possible answer to this question may not be forthcoming for another few years because of the uncertainty of the specific relationship between these two diseases.

Table I shows the age and sex distribution of 46 cases collected from the literature of acute myocardial infarction and associated hyperthyroidism. There were 30 males and 16 females. Sixty percent of the cases fell in the age group of 41 to 60 years; it is well known that the incidence of atherosclerotic heart disease and its complications is greater in this group (23). Of the 16 females, 5 still had their menstrual cycles and 9 were post-menopausal at the time of the myocardial infarction; in the other two cases, this information is lacking. This is similar to what is seen in the general female population in which there is a higher prevalence of atherosclerosis in the postmenopausal group, possibly due to the lack of "protective effect" that estrogen

TABLE I: AGE AND SEX DISTRIBUTION IN CASES OF ACUTE MYOCARDIAL INFARCTION AND HYPERTHYROIDISM

Age Range	Men	Female	Total
21-30	0	0	0
31-40	6	2	8
41-50	7	9	16
51-60	10	2	12
61-70	4	2	6
71-80	3	1	4
81090	0	0	0
Total	30	16	46

exerts upon the cardiovascular system.

Bing and his associates 22), studying a small number of thyrotoxic patients, observed increased coronary blood flow and increased oxygen content of the coronary sinus blood. Rowe *et al* (23) report that the hypermetabolic state of thyrotoxicosis includes the myocardium. Upon return to the euthyroid state with treatment, the cardiac output, cardiac work, coronary blood flow and myocardial oxygen consumption becomes normal, and the coronary vascular resistance increases. This evidence is at variance with Bing's (22) interpretation, but seems to shed light on the mechanism by which thyrotoxic patients are usually spared episodes of myocardial infarction.

It has long been recognized that the serum cholesterol tends to be low in thyrotoxicosis. Gofman (24) has held the point of view that there may be little correlation between the total serum cholesterol concentration and that of the Sf 12-20 fraction separated in the ultracentrifuge. However, Keys (25) believes that the correlation is always significant. In our patient, all the lipid studies were within normal limits, except for moderate elevation of the phospholipids. This was not considered important being an isolated finding in the presence of normal beta and alpha lipoproteins, serum cholesterol, triglycerides and free fatty acids. We can state with fair certainty that from the lipid standpoint there was no predisposing cause for her atherosclerosis.

Upon trying to elucidate the pathogenesis of coronary occlusion in association with thyrotoxicosis, three possibilities must be considered: 1. significant coronary atheromatosis is present which leads to myocardial infarction. Previously asymptomatic coronary artery insufficiency becomes manifest during the hyperkinetic circulatory phase of thyrotoxicosis; 2. myocardial infarction is the result of coronary occlusion on an embolic basis from a thrombus in the left atrium, formed during a previous unrecognized bout of atrial fibrillation; 3. thyrotoxicosis produces direct damage to the coronary arteries resulting in occlusion and subsequent infarction.

In our patient we consider atheromatosis the most likely cause of myocardial infarction due to her age, postmenopausal state, onset of angina prior to onset of hyperthyroidism, and the presence of xanthelasma. She has a normal GTT and the lipids are also normal, except for a mild elevation of total phospholipids.

The second possibility has to be considered also and we have no way of ruling it out, except for the absence of fibrillation and previous history of angina. Hyperthyroidism in the presence of valvular heart disease frequently initiates congestive heart failure or alterations in cardiac rhythm. In a study of 44 thyrocardiac patients, rheumatic heart disease was present in approximately 20 percent (9), a somewhat higher incidence than a previously reported estimate (11). Acute rheumatic fever can occasionally be associated with hyperthyroidism (9), but more often it is mimicked by it. As a point of interest it is worth mentioning that a dilated pulmonary conus, a pounding cardiac impulse and prolonged P-R interval by electrocardiogram (26) may be found in uncomplicated hyperthyroidism.

Another unusual finding in this patient was the presence of xanthelasma. Major interest in the xanthomatous lesions centers about their importance with respect to the presence of development of atherosclerotic heart disease. We were only able to find one report (27) of 5 cases of hyperthyroid subjects with xanthelasma. A separate article (28) deals with this subject with respect to lipid studies and in relation to atherosclerosis.

Summary

We have presented the case of a 50-year old female with acute myocardial infarction, hyperthyroidism, xanthelasma and probable rheumatic heart disease. A survey of the world literature revealed forty six cases of acute myocardial infarction in association with thyrotoxicosis. We postulate that this patient had pre-existing atherosclerotic heart disease with angina, which culminated in an acute myocardial infarction probably because of her uncontrolled hyperthyroidism. The findings of xanthelasma and rheumatic heart disease make this case even more unusual.

Resumen

Hemos presentado el caso de una mujer de 50 años de edad con infarto agudo del miocardio, xantelasama y posiblemente enfermedad reumática del corazón. Examen de la literatura mundial reveló cuarenta y seis casos reportados de infarto agudo de miocardio en presencia de tirotoxicosis. Postulamos que este paciente tenía enfermedad aterosclerótica del corazón pre-existente con angina, la cual culminó en un infarto agudo coronariano, probablemente debido a su hipertiroidismo descontrolado. Los hallazgos de enfermedad reumática del corazón y xantelasma hacen este caso aún más interesante.

References

1. Somerville, W., and Levine, S. A.: Angina pectoris and

thyrotoxicosis. Brit. Heart J. 12: 245, 1950.

2. *Littman, D. S., Jeffers, W. A., and Rose, E.:* The infrequency of myocardial infarction in patients with thyrotoxicósis. Amer. J. Med. Sci. 233: 10, 1957.
3. *Burstein, J., Lamberg, B. A., and Eramaa, E.:* Myocardial infarction in thyrotoxicosis. Acta Med. Scandinav. 166: 379, 1960.
4. *Huang, J. C., Chen, C. P., Weffer, V., and Raferty, A.:* A stable reagent the Friedberman-Burchard reaction. Application to rapid cholesterol determination. Anal. Chem. 33: 1405, 1961.
5. *Van Handel, E., and Zilversmit, D. B.:* Direct tryglycerides. J. Lab. Clin. Med. 50: 132, 1957.
6. *Fisk, C. H., and Subbarrow, Y.:* Lipid phosphorus determination. J. Biol. Chem. 66: 375, 1925.
7. *Fredrickson, D. S., Levy, R. I., and Lees, R. S.:* Fat transport in lipoproteins. An integrated approach to mechanism and disorders. New Eng. J. Med. 276: 32, 94, 148, 215, 273, 1967.
8. *Stoffel, W., Chu, F. and Ahrens, E. H.:* Analysis of long chain fatty acids by gas liquid chromatography. Anal. Chem. 31: 307, 1959.
9. *Selenkow, H. A., and Marcus, F. I.:* Masked hyperthyroidism and heart disease. Med. Clin. N. Amer. 44: 1305, 1960.
10. *Gordon, J. A. L., and Lenkei, S. C. M.:* Thyrotoxicosis associated with myocardial infarction. Canad. Med. Ass. J. 90: 1128, 1964.
11. *Sandler, G., and Wilson, G. M.:* The nature and prognosis of heart disease in thyrotoxicosis. Quart. J. Med. 28: 347-351, 1959.
12. *Gurova, A. M., and Abramova, A. A.:* Clinico anatomical data on coronary atherosclerosis in patients with thyrotoxicosis. Klin. Med. (Moskva) 43: 28.
13. *Zefirova, G. S., Levitskaya, Z. T., and Balabokin, M. I.:* Toxic goiter and myocardial infarction. Problem. Endokr. Gormonoter 11: 19, 1965.
14. *Kushelevskii, B. P., and Gurova, A. M.:* Myocardial infarction in patients with thyrotoxicosis. Kardiologiia 6: 65, 1966.
15. *Biró, S.:* Thyroid function in patients with myocardial infarction. Ov. Hentil, 107: 734, 1966.
16. *Raab, W.:* Neurohormonal atherogenesis. Amer. J. Cardiol. 1: 113, 1958.
17. *Oyster, V. T., Davis, O. F., and Firedman, B.:* Spontaneous arteriosclerosis in epinephrine, thyroxin, and in cholesterol induced arteriopathy. Circulation 10: 609, 1954.
18. *Brewster, W. R., Isaacs, J. P., Osgood, P., and King, F. L.:* The hemodynamic and metabolic interrelationship in the activity of epinephrine, norepinephrine and the thyroid hormones. Circulation 13: 1, 1956.
19. *Krotkiewski, L.:* Atherosclerosis and hyperthyroidism. Pol. Arch. Med. Wewnet 30: 955, 1960.
20. *Singh, A.:* Malignant exopthalmos with myocardial infarction (a case report in a 30-year old male). Indian Heart J. 17: 79-84, 1965.
21. *Friedberg:* Diseases of the Heart, W. B. Saunders Company, 3rd. Ed., Philadelphia, 1966, p. 1616.
22. *Bing, R. J.:* The coronary circulation in health and disease as studied by coronary sinus catherterization. Bull. NY Acad. Med. 27: 407, 1951.
23. *Rowe, G. C., Huston, J. H., Weinstein, A., Tuchman, T., Brown, J. F., and Crumpton, C. W.:* The hemodynamics of thyrotoxicosis in man with special reference to coronary blood flow and myocardial oxygen metabolism. J. Clin. Invest. 35: 272, 1956.
24. *Gofman, J. W.:* Diet and lipotrophic agents in atherosclerosis. Bull. NY Acad. Med. 28: 279, 1952.
25. *Keys, A., Anderson, J., Fidanza, F., and Swahn, B.:* Effects of diet on blood lipids in man (particularly cholesterol and lipoproteins). Clin. Chem. 1: 34, 1955.
26. *Blizzard, J. J., and Rupp, J. J.:* Prolongation of the P-R interval as a manifestation of thyrotoxicosis. JAMA 173: 1845, 1960.
27. *Thomson, J. A.:* Xanthelasma associated with thyrotoxicosis. J. Clin. Endocrinol. 25: 758, 1960.
28. *Martínez-Rovira, C. R.:* Xanthelasma in association to hyperthyroidism. JAMA 206: 1081, 1968.

EDITORIAL

¿QUIEN SE ROBO LAS TORTAS?

¿Qué adulto, chiquillo otrora, no recuerda el famoso cuento de Lewis Carroll, Alicia en el País de las Maravillas? ¡Aún los cirujanos evocan sus escenas más amenas, como aquella aventura de Alicia en la llorosa y artificial Laguna de Lágrimas!

——Era oportuno irse, pues mientras hablaban había estado cayendo en la laguna toda clase de aves y animales, llenándola completamente: un Pato, un Pájaro-Bobo, un Loro, un Aguilucho y muchas otras extrañas criaturas que, cuando Alicia salió del agua, formaron cortejo tras ella siguiéndola hasta la orilla.——

Análoga es la situación que en cirugía ocasiona el síndrome del orificio torácico superior (thoracic outlet). Muchas criaturas extrañas le rodean: los síndromes del escaleno anterior, costoclavicular, de hiperabducción, de la costilla cervical, de compresión neurovascular y otras más. El síndrome del orificio torácico superior abarca a todos; con mencionarle se incluye a los demás y damos una impresión acertada de la patología subyaciente: compresión neurovascular por estructuras localizadas en la entrada del tórax.

Desde el Siglo XVIII la profesión médica conoce el importante papel que desempeñan las costillas cervicales en irritar los nervios y vasos adjuntos. Aunque sólo el porciento de 0.5 a 1.0 de la gente tiene costillas cervicales, no más del 10 porciento desarrolla síntomas de compresión neurovascular y, en 1920 Law expuso la paradoja de que hay pacientes que padecen del síndrome sin presentar costillas cervicales.

El Gato Sonriente de nuestro cuento apareció en el 1935, cuando Oschner dió popularidad, como tratamiento, a la operación en la cual se divide el músculo escaleno anterior. La Alicia de Lewis Carroll reconoció que había visto "muchos gatos sin sonrisa; pero una sonrisa sin gato . . . nunca." Lo último que desaparecía del Gato Sonriente era su sonrisa. Igualmente, ahora sabemos cuán fugaz es el éxito de esta operación. No obstante, algunos autores la recomiendan todavía, aunque aproximadamente ocho de cada diez pacientes vuelvan a padecer los síndromes iniciales. Semejante perseverancia carece de fundamento, y en verdad, por difícil que sea decapitar un Gato de cabeza sonriente pero sin cuerpo, es necesario señalar que el tratamiento del síndrome de la entrada al tórax no *consiste en escindir el escaleno anterior.*

¿Cómo puede ayudarse a estos pacientes? Recientemente, Urschel, Paulson y McNamara informaron sobre el tratamiento de 120 pacientes con esta afección y su experiencia es similar a la habida en otras instituciones. Sabido es que los síntomas suelen aparecer cuando la edad madura trae debilidad muscular. La mitad de los pacientes mejoró tan sólo con fisioterapia diseñada para restablecer la fuerza muscular. Otros han tenido éxito hasta en un 70 porciento, también con fisioterapia.

Si persisten los síntomas, o si hay indicios de compresión neurovascular, se hace necesario tratar mediante cirugía. En este grupo de pacientes los resultados de Urschel y sus compañeros fueron excelentes. Desde el 1962, Clagett dió énfasis a la teoría de que la primera costilla es el factor común en la compresión anatómica de nervio, vena o arteria, ya sea por músculo, ligamento, costilla o clavícula. *Aquí no hay Gato Sonriente encerrado. Ese denominador común, la primera costilla, produce síntomas tan diversos como dolor, parestesias, debilidad muscular, edema, dis-*

tensión venosa, ausencia del pulso, claudicación, daño arterial, trombosis o isquemia.

El diagnóstico de este síndrome puede lograrse consistentemente si se llevan a cabo arteriogramas o venogramas, y si se mide el tiempo de conducción del nervio cubital durante su paso por la entrada al tórax. Debe eliminarse la posibilidad de enfermedad ósea especialmente en la columna cervical. Una vez establecido el diagnóstico, la ablación de la primera costilla, tal y como los perentorios fallos de la Reina de Corazones amiga de Alicia, no debe tener mortalidad y escasamente alguna morbilidad. Puede abordársele por varias vías –axilar, posterior, anterior– o combinarse con reconstrucción vascular.

Recordemos, por último, cómo termina el famoso cuento de Carroll: la desdichada Sota fue acusada de robarse las tortas aunque todas las tortas regresaron y estaban sobre la mesa. En 1910, Murphy, extirpó la primera costilla torácica como tratamiento del "síndrome de la costilla cervical", **aunque el paciente no tenía costillas cervicales.** *Clagett y otros han recalcado que la extirpación de la primera costilla torácica, acompañada de la costilla cervical si está presente, es imprescindible para descomprimir verdadera y definitivamente la entrada al tórax. Esto es como si regresaran las tortas robadas. Falta ahora, establecido el concepto del factor común, decapitar al Gato Sonriente que no tiene razón de ser.*

Con ello, podemos pasar juicio sobre este asunto de las tortas robadas. Recordemos la escena:

––Deliberen––ordenó el Rey, dirigiéndose a los Jurados por vigésima vez durante la sesión.

––¡De ningún modo! ––dijo la Reina––Primero, veredicto; después deliberación.

––¡Qué absurdo! ––exclamó Alicia––Jamás he oído sentenciar primero y luego deliberar.

El Jurado Médico, para deliberar, tiene ante sí esta prueba.

1. *El diagnóstico del síndrome de la entrada al tórax es posible por métodos modernos en la mayor parte de los casos.*
2. *El factor común de la compresión neurovascular en el orificio superior del tórax es la primera costilla torácica.*
3. *Con la extirpación de la primera costilla, y de la costilla cervical, si está presente, se obtiene una decompresión definitiva de la entrada al tórax, se corrige la situación y se logran resultados duraderos y favorables en la gran mayoría de los pacientes.*
4. *La división del escaleno anterior no resuelve el problema anatómico y en la gran mayoría de los pacientes operados reaparecen los síntomas originales.*
5. *La fisioterapia aplicada adecuadamente tiene un verdadero valor terapéutico en este síndrome siempre y cuando no existan señales de lesión neurovascular.*

¡Cuidado! Quien delibere mal en este juicio podrá, no perder la cabeza por orden de la Reina de Corazones, sino lo que es más importante – la oportunidad de resolverle a su paciente un problema médico definitiva y esclarecidamente.

J. O. Just-Viera, MD

ACTUALIDADES MEDICAS

Filtration of Schistosomes from the Portal Blood in Man

The disease Schistosomiasis (Bilharzia) indicates infection with the parasite Schistosoma. It is prevalent throughout the world and is endemic in Puerto Rico. A ten year survey conducted in Puerto Rico between 1953 and 1963 by the U. S. Public Health Service indicated that the prevalence of the infection in Puerto Rico averaged 12 percent of the surveyed population.

The present form of therapy for Schistosomiasis consists of a variety of antihelminthic drugs, is not completely effective and produces significant side effects. Many clinicians therefore prefer not to treat patients except with general non-specific measures.

Two years ago a group of researchers succeeded in removing adult worms from the portal vein which connects the intestines with the liver by filtering this blood during the course of surgical removal of the spleen. However, this method of treatment constitutes a major operative procedure which entails a certain risk to patients and permits only one short course of treatment.

A group of researchers from Manhattan and San Juan VA Hospitals have devised a technique for introducing a catheter into the portal vein through the remnant of the umbilical vein under local anesthesia. This permits direct access to the portal venous system with a relatively minor surgical procedure and catheters can be left in place for several days without harm to the patient.

Recently a pilot study was conducted at San Juan V. A. Hospital headed by Dr. J. H. Amadeo, Chief, Surgical Service, where this technique was used to filter and remove adult Schistosoma worms from the blood stream of 7 veteran patients. The blood of several patients was filtered twice. The number of worms removed varied from a few to over 300. This new procedure may revolutionize the treatment of this serious and widespread disease.

NOTICIAS

Locales

A continuación informamos las siguientes actividades reportadas para los meses de julio, agosto y septiembre:

Julio

23 Reunión Directiva Cooperativa Asociación Médica - AMPR - *8:00 p.m.*
24 Reunión Junta Directiva Academia Medicina General - AMPR - *8:00 p.m.*
30 Reunión Junta Auxilio Médico Mutuo - AMPR - *6:00 p.m.*
31 Reunión Junta de Directores Asociación Médica - AMPR - *6:00 p.m.*
31 Reunión Consejo Judicial y Administrativo - AMPR - *8:00 p.m.*

Agosto

1 Reunión Junta Editora - Boletín - AMPR - *5:00 p.m.*
5 Reunión Comité Relaciones Públicas Distrito Este - AMPR - *8:00 p.m.*
5 Reunión Consejo Política Pública - AMPR - *8:00 p.m.*
6 Reunión Sociedad Médica Distrito Este - AMPR - *7:30 p.m.*
6 Reunión Sección ENT - AMPR - *7:30 p.m.*
12 Reunión Consejo Científico - AMPR - *6:00 p.m.*
12 Reunión Consejo Relaciones Públicas - AMPR - *8:00 p. m.*
12 Reunión Asociación Asistentes Médicos - AMPR - *8:00*
13 Reunión Consejo Servicios Médicos - AMPR - *8:00 p.m.*
13 Vistas Públicas Ley 22 - Hotel La Palma Mayaguez - *8:00 p.m.*
14 Curso Postgraduado Sección Pediatría Conferencia Dr. Ernesto Plata Rueda - AMPR - *8:00 p.m.*
15 Curso Postgraduado Sección Pediatría Conferencia Dr. Ernesto Plata Rueda - AMPR - *8:00 p.m.*
16 Curso Postgraduado Sección Pediatría - Mesa Redonda - Hotel El Conquistador, Fajardo
20 Vistas Públicas Ley 22 - Casa del Médico Arecibo - *8:00 p.m.*
27 Vistas Públicas Ley 22 - Casa del Médico Ponce - *8:00 p.m.*
28 Reunión Consejo Judicial y Administrativo - AMPR - *8:00 p.m.*
28 Reunión Consejo Salud Pública - AMPR - *8:00 p.m.*
29 Conferencia Asociación Fisioterapia - Capítulo P. R. AMPR

Septiembre

2 Reunión Comité Relaciones Públicas Distrito Este - AMPR - *8:00 p.m.*
3 Reunión Distrito Este - AMPR - *7:30 p.m.*
3 Reunión Sección ENT - AMPR - *7:30 p.m.*
3 Vistas Públicas Ley 22 - AMPR - *8:00 p. m.*

Internacionales

September

1-5 International College of Surgeons (U. S. Section) - Montreal
1-5 International Society for Neurochemistry - Milan, Italy
6-13 International Union for Health Education - Buenos Aires
11-13 Society of Internal Medicine - Bucharest, Rumania
20-25 International Society of Surgery - Buenos Aires
20-27 International Cardiovascular Society, Congress- Buenos Aires
22-27 International Congress on Occupational Health- Tokyo
30-Oct. 4 International Congress on Rural Medicine - Usuda, Japan

October

1-4 International Conference for Suicide Prevention - London
6-10 International Society of Orthopedic Surgery and Traumatology - Mexico City
6-11 International Congress of Radiology - Tokyo
6-11 International Congress of Rheumatology - Prague
9-14 World Federation of Societies of Anaesthesiologists - La Paz, Bolivia

November

20-27 Latin American Congress of Pathology - Buenos Aires

December

7-13 VI Congreso Sudamericano y II Congreso Uruguayo de Cardiología. Punta del Este, Uruguay

AMERICAN COLLEGE OF PHYSICIANS POSTGRADUATE COURSES, 1969-1970

Sept. 1969 - Medical Oncology, University of Minnesota Medical School, Minneapolis, Minn.
Oct. 1-4, 1969 - Vascular Disease, Mayo Graduate School of Medicine (University of Minnesota) and Mayo Clinic, Rochester, Minn.
Oct.20-24,1969 - Office Psychiatry for Internists, The Faulknet Hospital, Boston, Mass.
Nov. 3-7, 1969 - Mechanisms of Disease, University of Chicago Chicago, Ill.
Nov. 3-7, 1969 - Nuclear Medicine: Diagnosis and Treatment of Disease with Radionuclides given Interally, University of Michigan Medical Center, Ann Arbor, Mich.

RESOLUCIONES APROBADAS POR LA CAMARA DE DELEGADOS EN SU SEGUNDA REUNION DEL 1969

La Cámara de Delegados celebró su Segunda Reunión Ordinaria del año 1969 durante los días 4 y 5 de julio en el Hotel Palmarinas, Isabela. En esta reunión se aprobaron las siguientes resoluciones:

XI-68-18: "Confederación Médica Panamericana".

Por esta resolución se autoriza a la Junta de Directores gestionar el ingreso de miembros voluntarios de la AMPR en la Confederación Médica Panamericana.

IV-69-44: "Social Security Amendments".

La Cámara aprobó esta resolución que en su parte dispositiva dice: "That a resolution be presented at the annual meeting of the AMA next July 15th to request extension to Puerto Rico of all provisions of the Social Security Amendments in Title XIX.

VII-69-1: "Principios de Etica Médica".

Esta Resolución autoriza al Presidente de la AMPR para que a través del Consejo de Educación Médica, recomiende al Decano de la Escuela de Medicina de la UPR se ofrezca un curso a los estudiantes de cuarto año sobre Principios de Etica Médica y moral. La Cámara acordó además que se circule por lo menos una vez al año entre la matrícula de la Asociación la forma abreviada de los Principios de Etica Médica.

VII-69-2: "Felicitación".

La Cámara aprobó por unanimidad esta resolución de felicitación al Dr. César Rosa Febles, Secretario de la AMPR, por su exaltación a Director Médico de la Región Norte del Departamento de Salud de Puerto Rico.

VII-69-6: "Semana de la Prensa Puertorriqueña"

Se aprobó esta resolución que felicita a todos los medios de comunicación del país en su Semana.

La Cámara aprobó además las enmiendas propuestas por la Sociedad Médica del Distrito Este a su Reglamento.

COMITE DE NOMINACIONES

Se eligieron los miembros que integrarán el Comité de Nominaciones que tendrá a su cargo estudiar posibles candidatos para los cargos a ser electos en la reunión de noviembre de 1969. El Comité quedó integrado por los doctores Martín A. Iguina Mora, Fernando J. Cabrera, Eladio A. Montalvo Durand, Efraín Torres Castaing, Carlyle Benavent, José Abreu Elías, César Rosa Febles, José Alvarez de Choudens, Elí Ramírez y Emilio Pagán Gordils.

New Books

List of books recently acquired by the Library of the University of Puerto Rico, Medical Sciences Campus:

Language, Social Sciences, Education

1. Borrero, Elviro. La población de Puerto Rico: 1500-1964. San Juan, Puerto Rico, Depto. de Salud, n. d.
2. Cabrera, Gilberto R. Fundamentos del comercio internacional. Río Piedras, Editorial Universitaria, Universidad de Puerto Rico, 1969.
3. Conference on Learning, Remembering and Forgetting. 1st, Princeton, New Jersey, 1963. The anatomy of memory, proceedings of the first conference . . . California, Science and behavior books, 1965.
4. Conferencia de Casa Blanca Pro Niñez y Juventud. Informe al Hon. Gobernador de Puerto Rico sobre las actividades realizadas con motivo de la Conferencia de Casa Blanca Pro Niñez y Juventud de 1960. San Juan, P. R., Depto. de Hacienda, 1960.
5. Dixon, Wilfrid, Joseph. Introduction to statistical analysis. 2d Ed. New York, McGraw-Hill, 1957.
6. Dugdale, Kathleen. A manual on writing research. Rev. ed. Bloomington, Indiana. The Indiana University Bookstore, 1967.
7. Echeverría, José. Protesta juvenil y universidad. Río Piedras, Universidad de Puerto Rico, 1968.
8. Follett world-wide dictionaries: German. German-English, English-German (American English) Chicago, Follett Pub. Co., 1962.
9. Fowler, Henry Watson. A dictionary of modern English usage. New York, Oxford University Press, 1965.
10. Freund, John E. Modern elementary statistics. 3d ed. Englewood Cliffs, N. J., Prentice-Hall, Inc., 1967.
11. Fulton, Robert Lester, ed. Death and identify. New York, Wiley, 1965.
12. Girard, Denis. The new Cassell's French dictionary. French-English; English-French. N. Y., Funk and Wagnalls Co., 1962.
13. Granda, German de. Transculturación e interferencia linguística en el Puerto Rico contemporáneo, 1898-1968. Bogotá, Instituto Caro y Cuervo, 1968.
14. Nice, Richard. Dictionary of criminology. New York, Philosophical Library, 1965.
15. Niwano, Nikkyó. Travel to infinity, an autobiography of the President on an Organization of Buddhist laymen in Japan, Tokyo, 1968.
16. Puerto Rico. Laws, statutes, etc. Ley de planificación y presupuesto: Ley núm. 213 de 12 de mayo de 1942, según enmendada. Ley núm. 147 y P. de la C. 767. San Juan, Junta de Planificación de Puerto Rico, 1966.

17. Rivera, Guillermo. A tentative bibliography of the belleslettres of Porto Rico. Cambridge, Massachusetts, Harvard University Press, 1931.

18. Robertson, Ross M. The comptroller and bank supervision, a historical appraisal. Wash., D. C., Office of the Comptroller of the Curreney, 1968.

19. Selltiz, Claire. Métodos de investigación en las relaciones sociales. Traducción. Madrid, Ediciones Rialp, S. A. 1965.

20. Smith, David. T., ed. Abortion and the law. Cleveland, Western Reserve University, 1967.

21. Statisties sources. 2d ed. Detroit, Gale Research Co., 1965.

22. Thass-Thienemann, Theodore. The subconscious language. New York, Washington Square Press, 1967.

23. Unión Panamericana. Departamento de Estadísticas. América en cifras 1965. Washington, D. C., 1966. 5 v. in 9.

24. Webster's biographical dictionary. 1st ed. Springfield, Mass., G. & C. Merriam Co., 1967.

25. The World book dictionary. Chicago, Published exclusively for Field Enterprises Educational Corp., 1968.

Medical Profession

1. Adair, Fred Tyman. The country doctor and the specialist. Florida, Adair Award Fund, 1968.

2. American Academy of General Practice. Organization and management of family practice. Kansas City, Missouri, American Academy of General Practice, Committee on Medical Economies, 1968.

3. Asociación Venezolana de Facultades (Escuelas) de Medicina. Tercer seminario nacional de educación médica y 1ra. conferencia de la Asociación Venezolana de Facultades (Escuelas) de Medicina, Caracas, 1967.

4. Education in the history of medicine; report of a Macy conference. New York, Hafner Pub. Co., 1968.

5. Seminar on Education for Family Practice. Proceedings of a seminar held at Columbus, Ohio, April 24-25, 1968.

Science

1. Beyer, William H., ed. CRC handbook of tables for probability and statistics. Cleveland, Chemical Rubber Co., 1966.

2. Brown, D. J. The pyrimidines. New York, Interscience Pubs., 1962.

3. Guinot, Daniele. Les crabes comestible de L'indopacifique. Paris, Editions de la Fondation Singer-Polignac, 1966.

4. Gurland, John, ed. Stochastic models in medicine and biology. Madison, University of Wisconsin Press, 1964.

5. Hais, I. M., ed. Paper chromatography, a comprehensive treatise. Prague, House of the Czechoslovak Academy of Sciences, 1963.

6. Ireland, Norma (Olin) Index to scientists of the world, from ancient to modern times: biographies and portraits. Boston, F. W. Faxon Co., 1962.

7. Jensen, William A. Botanical histochemistry principles and practice. San Francisco, W. H. Freeman, 1962.

8. Randerath, Kurt. Dunnschicht-Chromatographie Weinheim/Bergstr., Verlag Chemie, 1962.

9. Shmal'gauzen, Ivan Ivanovich. The origin of terrestrial vertebrates. Translated from the Russian by Leon Kelso. New York, Academic Press. 1968.

10. Speck, Gerald Eugene, ed. A dictionary of science terms. 1st ed. New York, Hawthorn Books, 1965.

11. Steere, Norman V., comp. CRC handbook of laboratory safety. Cleveland, Chemical Rubber Co., 1967.

12. Symposium on Decision Making in National Science Policy, London, 1967. Decision making in national science policy. Boston, Little, Brown, 1968.

13. Symposium on the Science and Technology of Residual Insecticides in Food Production with Special Reference to Aldrin and Dieldrin, Gaithersburg, Md., and St. Charles, Ill., 1967. Symposium . . . New York, Shell Oil Co., 1968.

14. Szymanski, Herman A. NMR band handbook. New York, IFI/Plenum, 1968.

15. Twitty, Victor Chandler. Of scientists and salamanders. San Francisco, W. H. Freeman, 1966.

16. Who's who in science in Europe: a new reference guide to West European scientists. Guernsey, F. Hodgson, 1967.

17. Yunis, Jorge J., ed. Human chromosome methodology. New York, Academic Press, 1965.

Biochemistry

1. Allen, Frank Worthington. Ribonucleoproteins and ribonucleic acids; preparation and composition. Amsterdam, New York, Elsevier Pub. Co., 1962.

2. Collected papers on nutrition in Puerto Rico. 1921-1962. San Juan, Puerto Rico, University of Puerto Rico, Medical Sciences Campus, 1968. 2 vols.

3. Fayard, Marcelo 1. Salud y vigor por la alimentación. Brookfield, Ill., Ediciones Interamericanas, 1956.

4. Jelliffe, Derriek B. Evaluación del estado de nutrición de la comunidad (con especial referencia a las encuestas en las regiones en desarrollo). Ginebra, Organización Mundial de la Salud, 1968.

5. Perutz, Max F. Proteins and nucleic acids: structure and function. Amsterdam, New York, Elsevier Pub. Co., 1962.

6. Symposium on Macromolecular Metabolism, New York, 1965. Macromolecular metabolism; proceedings of a symposium sponsored by the New York Heart Association. 1st ed. Boston, Little, Brown, 1966.

7. Symposium on New Perspectives in Biology, Rehovot, Israel, etc., 1963. New perspectives in biology. Amsterdam, N. Y., Elsevier Pub. Co., 1964.

Pharmacology

1. Dobbs, Edward Clarence. Pharmacology and oral therapeutics. 11th ed., St. Louis, Mosby, 1956.

2. Falconer, Mary W. Current drug handbook 1968-70 Phila., Saunders, 1968.

3. Hoffer, Abram. The hallucinogens. New York, Academic Press, 1967.

4. Institute Solvay, Brussels. Institut international de chimie. Conseil de chimie. Nucleoproteins. New York, Interscience Pubs., 1960.

5. Korzybski, Tadeusz. Antibiotics: origin, nature and properties Oxford. Pergamon Press, 1967.

6. Paton, William D. M. Pharmacological principles and practice. 1st ed. Boston, Little, Brown, 1968.

7. Trounce, John R. Pharmacology for nurses. 4th ed. London, Churchill, 1967.

8. Wilson. Andrew Applied pharmacology. 10th ed. Boston, Little, Brown, 1968.

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el número de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), e iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas médicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

Se alquila local segundo piso, para médicos - Más de 1,000 pies cuadrados - piso terrazo - tres cuartos - dos baños; luz, agua y parking incluídos. A varios minutos del Hospital del Maestro. Centro Médico y Auxilio Mutuo. Para más información, llamar al Dr. Cuevas, teléfonos 767-1004 o 764-2226.

Se alquila local para dispensario médico - Tiene tres oficinas - Teléfono - Ave. Comercial Lomas Verdes. Para más información llamar al teléfono 767-5095

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pilar Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras, Están semiequipadas. Sitio céntrico próximo a las calles principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas, Apartado 20267, Río Piedras, P. R., Teléfono 766-7398.

WANTED

Internist, Board certified or eligible to work in a prosperous, growing area in South Texas. Will share modern medical building with Lab. and X-Ray facilities. Please contact Victor Malagón, MD, FACP, FACC, 802 So. Main St., McAllen, Texas.

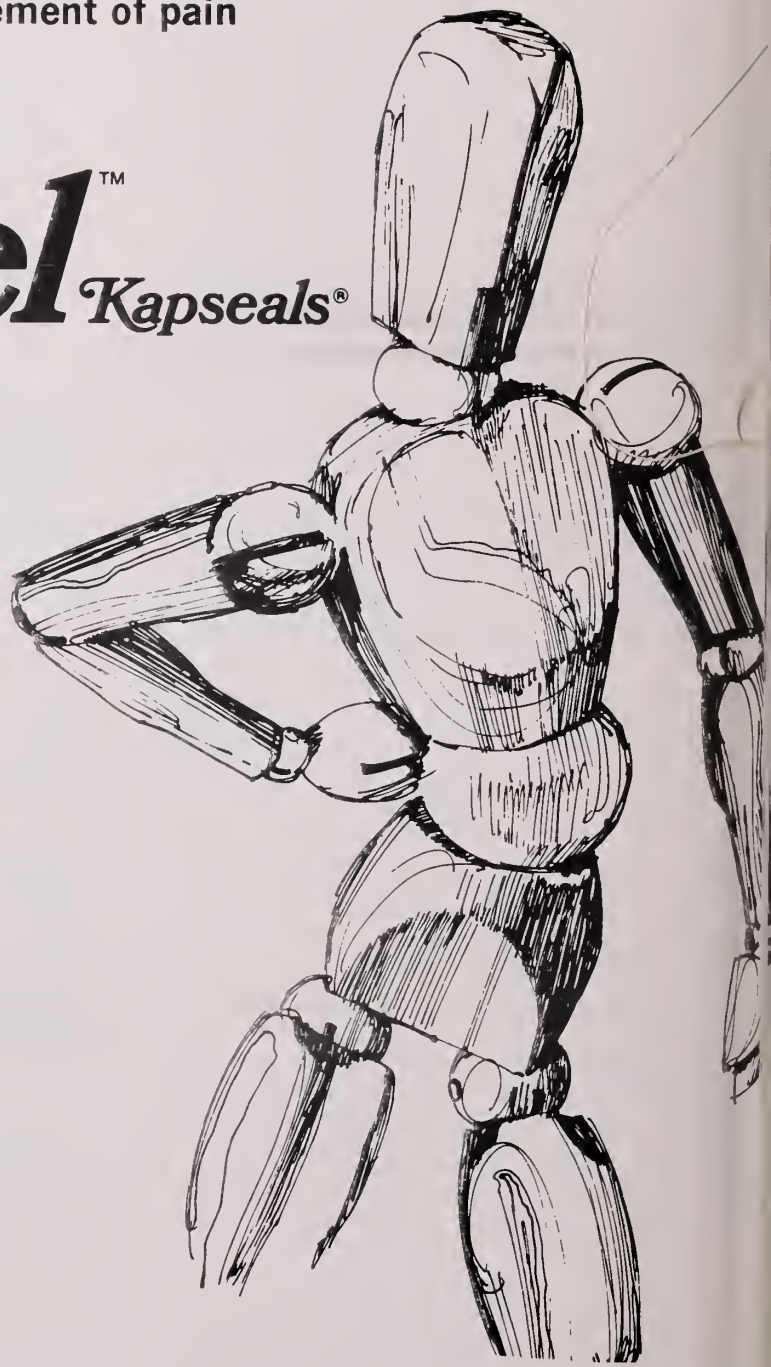
SE VENDE

Se vende Fluroscopio Westinghouse. Precio razonable. Inf: J. Ramírez-Ledesma, MD, Apartado 3013, Mayaguez, Puerto Rico, 00708.

NEW . . . for effective management of pain

Ponstel™ Kapseals®
(mefenamic acid)

a nonnarcotic oral analgesic



PARKE-DAVIS



"He's doing better.
X-rays show a duodenal ulcer,
but the bleeding has definitely
slowed down."



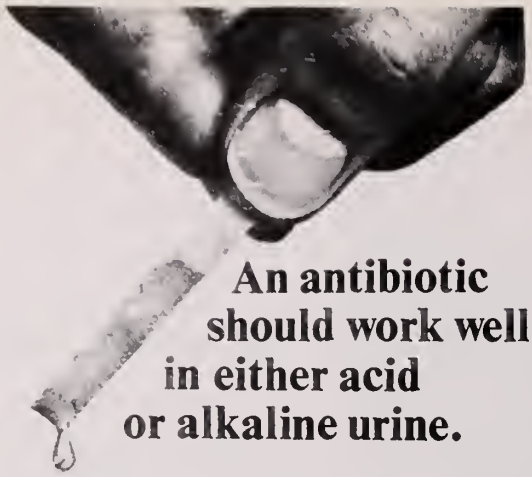
"Hemoglobin is still low,
so I'd give him at least
one more unit of blood and
continue the milk and Maalox."

Maalox works fast, does not constipate, and is pleasant to take... no taste fatigue.

3 dosage forms for convenience, flexibility and variety:
Maalox Suspension (12 fl. oz.). Maalox No. 1 Tablets (0.4 Gm.) : sugar-free and low in sodium.
Maalox No. 2 Tablets (0.8 Gm.) : double strength for double antacid action.

Maalox®
MAGNESIUM-ALUMINUM HYDROXIDE

WILLIAM H. RORER, INC. FORT WASHINGTON, PA.



An antibiotic should work well in either acid or alkaline urine.

It isn't always necessary to adjust urinary pH in treating G.U. infections.

Not when the causative organism is a strain sensitive to DECLOMYCIN® Demethylchlortetracycline, as is often the case.

DECLOMYCIN remains stable and active in either acid or alkaline urine. So there's no need to acidify the urine to keep the antibiotic at work.

Why match the urine to the antibiotic...when you can match the antibiotic to the urine...by prescribing DECLOMYCIN. A b.i.d. dosage makes therapy convenient for your patient.

Effectiveness: DECLOMYCIN Demethylchlortetracycline should be equally or more effective therapeutically than other tetracyclines in infections caused by organisms sensitive to the tetracyclines.

Contraindication: History of hypersensitivity to demethylchlortetracycline.

Warning: In renal impairment usual doses may lead to excessive accumulation and liver toxicity. Under such conditions lower than usual doses are indicated and if therapy is prolonged serum level determinations may be advisable. A photodynamic reaction to natural or artificial sunlight has been observed. Small amounts of drug and short exposure may produce an exaggerated sunburn reaction which may range from erythema to severe skin manifestations. In a smaller proportion, photoallergic reactions have been reported. Patients should avoid direct exposure to sunlight and discontinue drug at the first evidence of skin discomfort. Necessary subsequent courses of treatment with tetracyclines should be carefully observed.

Precautions: Overgrowth of nonsusceptible organisms may occur. Constant observation is essential. If new infections appear, appropriate measures should be taken. In infants, increased intracranial pressure with bulging fontanels has been observed. All signs and symptoms have disappeared rapidly upon cessation of treatment.

Side Effects: Gastrointestinal system – anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. Skin – maculopapular and erythematous rashes; a rare case of exfoliative dermatitis has been reported. Photosensitivity; onycholysis and discoloration of the nails (rare). Kidney – rise in BUN, apparently dose-related. Transient increase in urinary output, sometimes accompanied by thirst (rare). Hypersensitivity reactions–urticaria, angioneurotic edema, anaphylaxis. Teeth – dental staining (yellow-brown) in children of mothers given this drug during the latter half of pregnancy, and in children given the drug during the neonatal period, infancy and early childhood. Enamel hypoplasia has been seen in a few children. If adverse reaction or idiosyncrasy occurs, discontinue medication and institute appropriate therapy. Demethylchlortetracycline may form a stable calcium complex in any bone-forming tissue with no serious harmful effects reported thus far in humans.

Average Adult Daily Dosage: 150 mg q.i.d. or 300 mg b.i.d. Should be given 1 hour before or 2 hours after meals, since absorption is impaired by the concomitant administration of high calcium content drugs, foods and some dairy products. Treatment of streptococcal infections should continue for 10 days, even though symptoms have subsided.

Capsules: 150 mg; Tablets: film coated – 300 mg, 150 mg and 75 mg of demethylchlortetracycline HCl.

355-8

DECLOMYCIN®
DEMETHYLCHLORTETRACYCLINE

Lederle LEDERLE LABORATORIES, A Division of American Cyanamid Company, Pearl River, New York

Ad No 82-6623
Declomycin
Lederle Laboratories
1 page ad—back cover
Publication—1968
Prepared by Erwin Wasey, Inc.

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistémicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.


A little Hygroto
chlorthalidone



an work a long diuretic day

the way from one daily tablet to the next help control edema and hypertension

prolonged action usually provides smooth, sustained diuretic ectiveness; real one-a-day dosage, right from the start; convenience d economy.

groton, chlorthalidone, can cause side effects. And it's contra- licated in hypersensitivity to the drug and severe renal and patic diseases.

eck the prescribing information. It's summarized on the next page.

Geigy



A little Hygroton® can work a long diuretic day

chlorthalidone

Indications: Hypertension and many types of edema involving retention of salt and water.

Contraindications: Hypersensitivity and most cases of severe renal or hepatic diseases.

Warning: With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has been required frequently and deaths have occurred. Discontinue enteric-coated potassium supplements immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur.

Use with caution in pregnant women and nursing mothers since the drug may cross the placental barrier and appear in cord blood and since thiazides may appear in breast milk. The drug may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. When used in women of childbearing age, balance benefits of drug against possible hazards to fetus.

Precautions: Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. Because of the possibility of progression of renal damage, periodic determination of the BUN is indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated.

Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria.

Take special care in cirrhosis or severe ischemic heart disease and in patients receiving corticosteroids, ACTH, or digitalis. Salt restriction is not recommended.

Adverse Reactions: Nausea, gastric irritation, vomiting, anorexia, constipation and cramping, dizziness, weakness, restlessness, hyperglycemia, glycosuria, hyperuricemia, headache, muscle cramps, orthostatic hypotension, which may be potentiated when chlorthalidone is combined with barbiturates, narcotics or alcohol, aplastic anemia, leukopenia, thrombocytopenia, agranulocytosis, impotence, dysuria, transient myopia, skin rashes, urticaria, purpura, necrotizing angiitis, acute gout, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Other reactions reported with this class of compounds include: jaundice, xanthopsia, paresthesia, and photosensitization.

Average Dosage: 50 or 100 mg. with breakfast daily or 100 mg. every other day.

Availability: White, single-scored tablets of 100 mg. and aqua tablets of 50 mg., in bottles of 100 and 1000.

(B)46-230-E

For full details, please see the complete prescribing information.

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

Cuando comen lo que les gusta y no lo que deben...



ayude a cubrir "el déficit" de vitaminas con

Unicap Therapeutic

10 vitaminas combinadas con 7 minerales

Cada tableta contiene:

Vitamina A	1.5 mg.
Vitamina D	10 mcg.
Mononitrato de Tiamina (B-1)	10 mg.
Riboflavina (B-2)	10 mg.
Acido Ascórbico (C) (como ascorbato de sodio)	300 mg.
Niacinamida	100 mg.
Clorhidrato de Piridoxina (B-6)	2 mg.
Pantotenato de Calcio	20 mg.
Cobalamina (B-12) (como concentrado de cobalamina)	20 mg.
Vitamina E	30 Unidades Internacionales
Hierro (a partir de 50 mg. de sulfato ferroso)	10 mg.
Yodo (como yoduro de potasio)	0.15 mg.
Calcio (como carbonato)	50 mg.
Cobre (como sulfato)	1 mg.
Manganeso (como sulfato)	1 mg.
Magnesio (como sulfato)	6 mg.
Potasio (como sulfato)	5 mg.

Posología: Adultos y niños mayores de 6 años – 1 tableta diaria.

Presentación: Frascos de 30 y 90

Upjohn

PR 5226.1 MAY, 1969

6811 MARCA REGISTRADA EN E.U.A.: UNICAP THERAPEUTIC

UPJOHN INTER-AMERICAN CORPORATION / CAPARRA / PUERTO NUEVO



When disease is ruled out and psychic tension is implicated

Valium® (diazepam) helps relax the patient and relieve his somatic symptoms

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

XI CONGRESO PANAMERICANO DE GASTROENTEROLOGIA

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

HIGADO – LIVER 311

ESTOMAGO–DUODENO STOMACH–DUODENUM 318

CROBIOLOGIA Y PARASITOLOGIA MICROBIOLOGY AND PARASITOLOGY 327

ESOFAGO – ESOPHAGUS 332

INTESTINO DELGADO – SMALL INTESTINE 336

COLON – COLON 342

ENDOSCOPIA – ENDOSCOPY 344

MISCELANEOS – MISCELLANEOUS 346

EDITORIALES 349

XI Congreso Panamericano de Gastroenterología

Bienvenidos

OL. 61 SEPTIEMBRE, 1969 NUM. 9

if he exercises



if he stops smoking if he takes Arlidin® (nylidrin HCl) the improvement can be significant!

in peripheral vascular disease: **EXERCISE** "Exercise is the specific physiologic stimulus for producing vasodilation in skeletal muscle."[1] **SMOKING** "The first and most important consideration of treatment is firm insistence that the patient stop smoking immediately and permanently. The reason for this is the powerful vasoconstricting action of smoking which is responsible for diminishing the peripheral circulation to a great degree."[2] **ARLIDIN** The overall physiological effect of a therapeutic agent should be similar to exercise—that is, both to increase cardiac output and to produce peripheral vasodilation.[3] "The ideal agent should be administered in the same way that we prescribe exercise—that is, three or four times a day for many years rather than for several weeks. The therapeutic goal is to increase blood flow through the capillary beds by way of a patent and constantly expanding collateral blood supply. At this time, I am aware of only one agent which fulfills the requirements as outlined above, namely nylidrin (Arlidin)."[3]

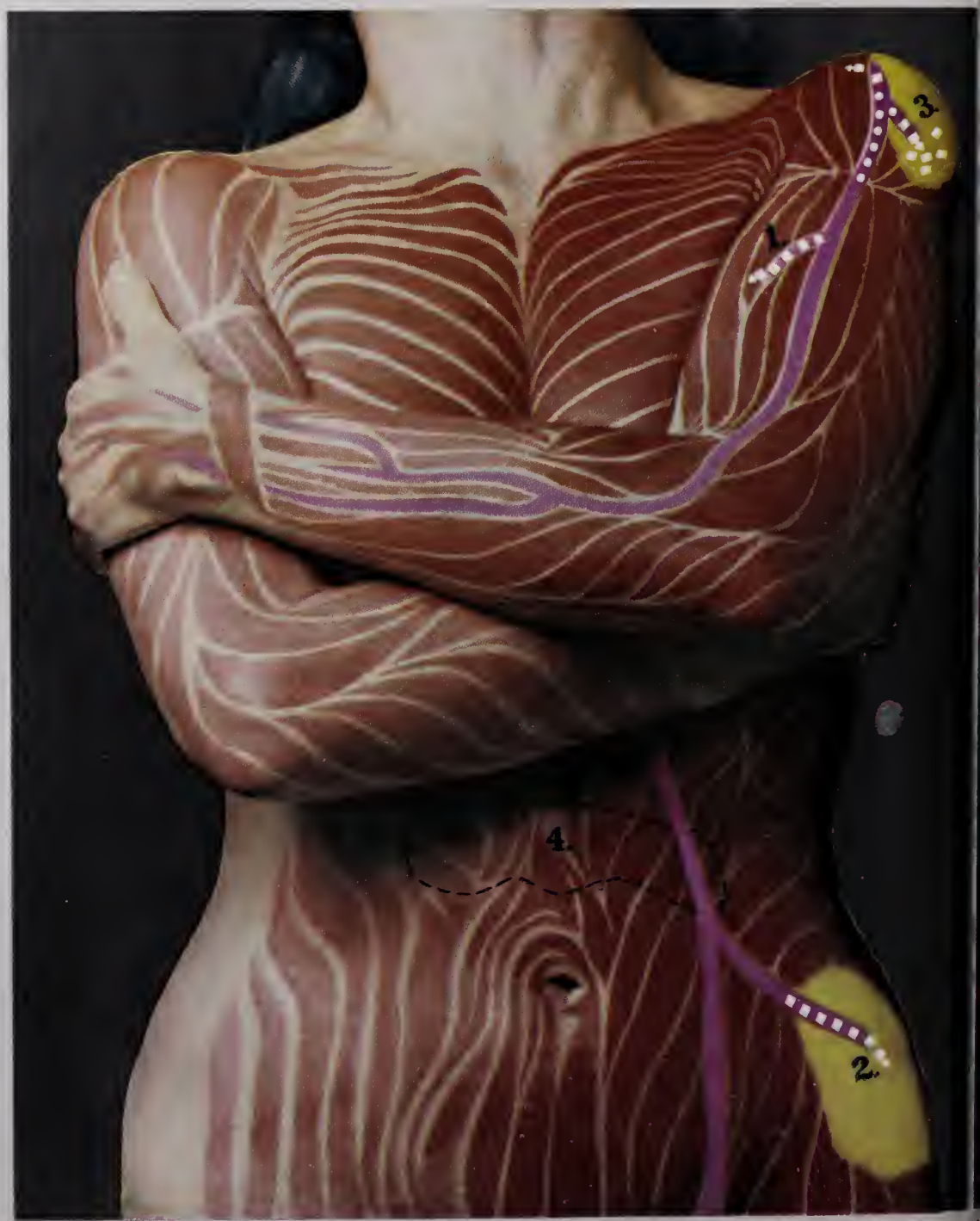
Contraindications: Acute myocardial infarction. (Following myocardial infarction, the initiation or reestablishment of this therapy should be undertaken in the same way as physical exercise. After a reasonable healing period, gradual upward adjustment of dosage to therapeutic levels may be attempted.) **Precautions:** Use with caution in the presence of a recent myocardial lesion, paroxysmal tachycardia, severe angina pectoris and thyrotoxicosis. **Adverse Reaction:** Occasional palpitation. **Dosage:** ½ to 1 tablet (3 to 6 mg.) three or four times a day is the usual effective dosage; increased, if necessary, to 2 tablets three or four times a day. Parenterally, 0.5 cc. by subcutaneous or intramuscular injection; increased gradually to 1 cc. one or more times daily, as needed. **Available:** Tablets: 6 mg. scored, bottles of 50, 100, and 500. Parenteral: 5 mg. per cc., 1 cc. ampuls (6 per box); 10 cc. multiple-dose vials (1 per box). **References:** 1. deCrinis, K., Redisch, W. and Steele, J.M.: Proc. Soc. Exper. Biol. Med. *102*:29, 1959. 2. Samuels, S.S.: Med. Times *88*:332, 1960. 3. Karpman, H.L.: Canad. Med. Ass. J. *94*:457, 1966.

arlidin®
(nylidrin HCl)

USV

USV PHARMACEUTICAL CORPORATION
New York, N.Y. 10017

Why DBI-TD (phenformin HC
is the only significant advanc
in oral diabetes therap
since sulfonylurea



□ glucose ○ ins

1 Only DBI-TD does more than just ower blood sugar–it directs sugar rimarily to where it is most needed... muscle.

the maturity-onset diabetic, blood sugar is evated, but apparently not enough glucose enters uscle. Unlike other agents, DBI-TD increases ucose utilization primarily in skeletal muscle here sugar is needed.

2 Only DBI-TD actually promotes eight loss in the maturity-onset iabetic who is overweight.

l oral drugs *except* DBI-TD increase insulin ease, which suppresses lipolysis and can celerate lipogenesis. Thus DBI-TD, by avoiding sulin oversecretion, appears to ease—rather than gravate—the weight problem in patients responsive to diet alone.

3 Only DBI-TD, among oral agents, elps counterbalance the inefficient ction of the diabetic's own insulin.

ere is increasing evidence that many overweight turity-onset diabetics have higher than normal ood insulin levels, but this insulin is not efficient promoting muscle glucose uptake. Unlike all her oral agents, DBI-TD helps control diabetes by ectively moving sugar into muscle without ther increasing insulin levels.

4 Only DBI-TD, because of its nique action, reduces the risk of condary failure and hypoglycemic action.

I-TD is the only agent that lowers blood sugar hout stimulating the release of insulin from the ncreas. Secondary failures are infrequent with I-TD, and there is relative freedom from oglycemic reaction when DBI-TD is used alone.

a more
physiological approach
to begin with

DBI®-TD

(phenformin HCl)

timed-disintegration capsules 50 mg.

Dosage: 1 to 3 capsules daily. **Side Effects:** Gastrointestinal, occurring more often at higher dosage levels, abate promptly upon dosage reduction or temporary withdrawal. **Adverse Reaction:** Urticaria. **Precautions:** Occasionally an insulin-dependent patient will show "starvation" ketosis (acetonuria without hyperglycemia) which must be differentiated from "insulin lack" ketosis which is accompanied by acidosis, and treated accordingly. Lactic acidosis has been reported in nondiabetics and diabetics treated with insulin, with diet, and with DBI. Question has arisen regarding possible contribution of DBI to lactic acidosis in patients with renal impairment and azotemia and also those with severe hypotension secondary to myocardial or bowel infarction. Periodic B.U.N. determination should be made when DBI is administered in the presence of chronic renal disease. DBI should not be used when there is significant azotemia. Any cardiovascular lesion that could result in severe or sustained hypotension, which may itself lead to development of lactic acidosis, should be considered cause for immediate discontinuation of DBI at least until normal blood pressure has been restored and is maintained without vasopressors. Should lactic acidosis occur from any cause, vigorous attempts should be made to correct circulatory collapse, tissue hypoxia, and pH. **Contraindications:** Severe hepatic disease, renal disease with uremia, cardiovascular collapse. Not recommended without insulin in acute complications of diabetes (metabolic acidosis, coma, severe infections, gangrene, surgery). ***Pregnancy Warning:*** *During pregnancy, until safety is proved, use of DBI, like other oral hypoglycemic drugs, is to be avoided.* **Also Available:** DBI tablets 25 mg. *Consult product brochure.*

USV

USV PHARMACEUTICAL CORP., New York, N.Y. 10017
Producers of ARLIDIN® (nylidrin HCl)



Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistémicos y locales es poco común. Puede ocurrir coloración de la piel Una dosis excesiva, superior a la requerida puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafiláctica son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.



There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

Member of the National Association of Blue Shield Plans

Otro nuevo descubrimiento de Lakeside



cuando la depresión abruma

NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardíacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extrapiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.

IN PATIENT BENEFITS

what does CHYMORAL's faster action mean? It can mean:

- Edema and inflammation subside twice as fast—healing time cut in half.
- The patient is restored to normal activities twice as fast.
- Lesions heal in less time—and the physical appearance of the patient improves twice as fast.
- Hospital stay...convalescent period...medication costs may be cut in half.

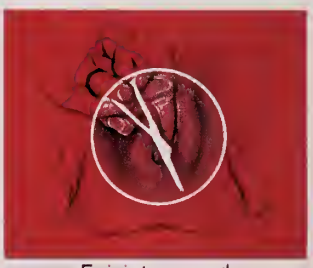
The benefits of CHYMORAL cover many conditions and the results[1] are worthy of mention.



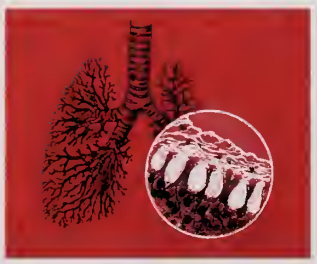
Surgical trauma

4123 cases **91%** had good/excellent results

3470 cases **89%** had good/excellent results



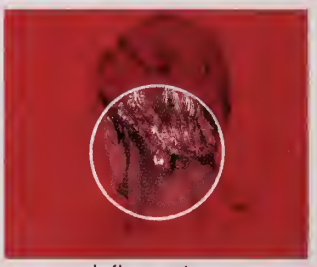
Episiotomy and pelvic inflammation



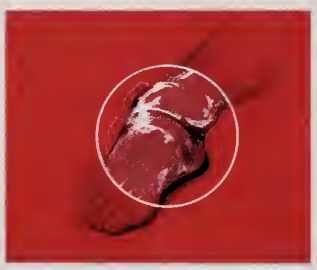
Inflammation of respiratory tract

2389 cases **80%** had good/excellent results

1055 cases **75%** had good/excellent results



Inflammatory dermatoses



Traumatic lesions

6929 cases **93%** had good/excellent results

2645 cases **83%** had good/excellent results



Eye, ear, nose and throat inflammations

***Rx.* CHYMORAL®—Enzyme tablets**

ARMOUR PHARMACEUTICAL COMPANY, Chicago, Illinois 60690, U.S.A.

[1]Based on clinical reports compiled by the Medical Division of Armour Pharmaceutical Company

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:
Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:
El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:
Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

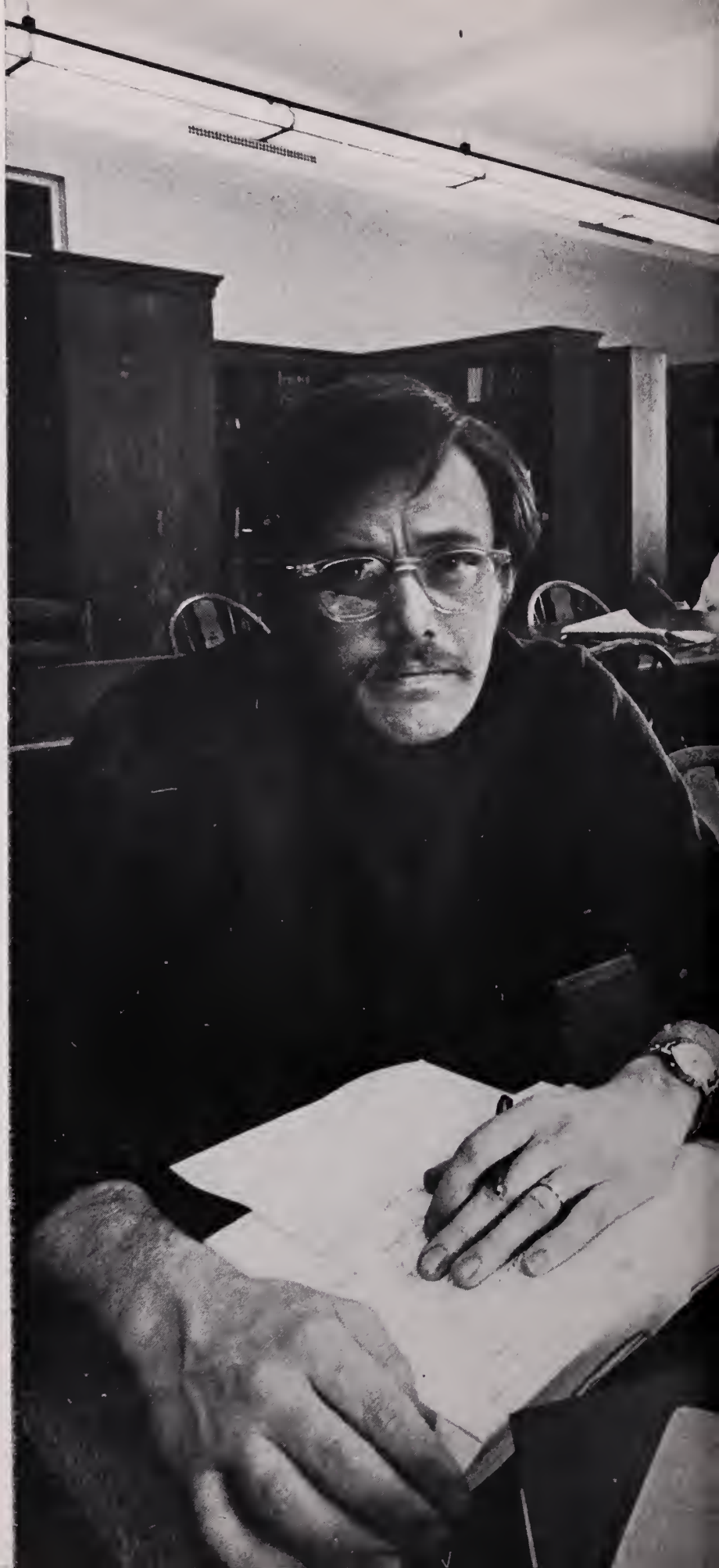
Second class postage paid at San Juan, Puerto Rico.

Symbols in a life of psychic tension

M.A.
class of '66

Ph.D.
thesis...in progress

G.I.
series and complete examination normal
(persistent indigestion)



ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110



Rx

Valium® (diazepam) *t.i.d.* and *h.s.*

M. A. (class of '66)... Ph.D. (thesis, in progress)... letters that represent a young lifetime of work... a formal education nearing completion. But there are still long, arduous examinations to pass, a doctoral thesis to finish... a period in which stress is often converted into the gastrointestinal symptoms of psychic tension. For this kind of patient—with no demonstrable pathology—consider the usefulness of Valium (diazepam).

Valium can help relieve psychic tension and resultant somatic symptoms, within the first day for some patients. Valium is also useful in psychic tension with associated depressive symptoms. And Valium can help relieve psychic tension-induced insomnia with an *h.s.* dose added to the *t.i.d.* schedule.

Valium is generally well tolerated. In proper maintenance dosage it seldom dulls the senses or interferes with functioning. Side effects most commonly reported have been drowsiness, fatigue and ataxia.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Valium® (diazepam)

2-mg, 5-mg, 10-mg tablets
to help relieve psychic tension
and its somatic symptoms

Dulcolax®...so predictable you can almost set patients by it.

Dulcolax works so effectively that the time of bowel evacuation can often be predicted.

Dulcolax tablets taken at night will usually result in a convenient bowel movement the following morning. Dulcolax suppositories generally work within 15 minutes to an hour.

Dulcolax may be given to the aged, pregnant or nursing women, and children. It may be particularly helpful in conditions in which straining should be avoided. The drug, however, is contraindicated in the acute surgical abdomen.

Dulcolax® bisacodyl



ASOCIACION INTERAMERICANA DE GASTROENTEROLOGIA

Mensaje a las Sociedades de Gastroenterología y a los Gastroenterólogos de la América

En el Décimo Congreso Panamericano de Gastroenterología llevado a cabo con tanto éxito en la Ciudad de Lima, y el cual todos recordamos con tanto cariño, tanto por el nivel científico de la reunión, como por lo agradable de nuestra estadía, se me hizo el honor de nombrárseme para el cargo de Presidente de la Asociación Interamericana de Gastroenterología, y ello debido a la muerte del Presidente Titular, nuestro nunca bien lamentado amigo, Dr. José Antonio Jácome Valderrama, quien organizó con tanto éxito el Noveno Congreso de Bogotá.

En la misma ocasión se escogió a la ciudad de San Juan de Puerto Rico como sede de nuestro próximo congreso, el Onceavo.

Los amigos de San Juan han constituído un brillante grupo organizador, presidido por el muy conocido amigo Dr. Federico Hernández Morales.

Este grupo entusiasta de médicos ha venido trabajando muy eficazmente, y ha seleccionado la fecha del 26 de Octubre a el primero de Noviembre de 1969 para nuestra reunión, la cual tendrá como sede el Hotel Sheraton de San Juan.

Me permito extenderles una muy cordial invitación a todas las Sociedades y médicos que trabajen en Gastroenterología, o alguna de sus ramas afines, para que se hagan presentes en nuestro Congreso.

No creo necesario insistir ni en la calidad y nivel científico del cuerpo médico de Puerto Rico, ni mucho menos en sus atractivos turísticos. Ambas circunstancias nos aseguran una reunión de muy alto nivel científico, que será de gran utilidad para todos los asistentes, y además un período de muy agradable estadía.

Esperamos una nutrida asistencia de todos los interesados, y el comité organizador con gran gusto suministrará toda la información necesaria.

Dr. Ignacio Vélez Escobar
Presidente

RESUMENES PARA EL PROGRAMA CIENTIFICO:

TRABAJOS A SER PRESENTADOS

ABSTRACTS FOR SCIENTIFIC PROGRAM:

PAPERS TO BE PRESENTED

I. HIGADO
I. LIVER

(1)

Jaundice and Dialose Plus

Gordon McHardy, MD, Browne-McHardy Clinic, 3636 Saint Charles Avenue, New Orleans, La., 70115

Two middle-aged women are described with a similar, moderately severe illness consisting of fatigue, vague abdominal symptoms and jaundice. Laboratory abnormalities consisted of elevation of serum transaminase, serum bilirubin and alkaline phosphatase. Physical findings included mild hepatic enlargement and tenderness. Cholecystographic studies were normal.

Each patient had been taking Dialose Plus prior to the illness. Improvement followed fortuitous discontinuance of the Dialose Plus in both patients upon hospitalization. Clinical and laboratory relapse occurred within two weeks, in both patients, upon the resumption of Dialose Plus. Recovery seems to have followed final discontinuance of the medication.

(2)

Evaluación Angiográfica y Hemodinámica del Síndrome de Hipertensión Portal

Dres. S. Beker G., M. Guelrud y J. Valencia-Parparcén. Servicio de Gastroenterología del Hospital Universitario de Caracas, Venezuela.

La investigación fue realizada en 54 pacientes. Los métodos utilizados fueron: angiografía y manometría del sistema suprahepático, de la vena cava inferior, esplenoportal y umbilicoportal.

El *cateterismo suprahepático* permitió el diagnóstico diferencial entre la cirrosis hepática y la fibrosis bilharziana por: a) presión hepática ocluída normal o discretamente elevada en fibrosis bilharziana en contraste con presiones elevadas en cirrosis; b) la angiografía demostró fundamentalmente reflujo por anastomosis hepato-hepáticas a venas suprahepáticas en la fibrosis bilharziana, en comparación con el reflujo hepatoportal observado en la cirrosis.

El *cateterismo de la vena cava inferior* demostró en la mayoría de los casos con cirrosis y fibrosis una hipertensión venosa inmediatamente por debajo del hígado y la cavografía reveló una disminución del diámetro venoso a nivel hepático.

La *esplenoportografía* estableció la naturaleza de la hipertensión portal y el tipo de reflujo por colaterales. La *manometría intraesplénica* registrada simultáneamente con la hepática ocluída definió el carácter presinusoidal (con gradiente aumentado: fibrosis) o postsinusoidal (sin gradiente: cirrosis) del síndrome de hipertensión portal.

El *cateterismo umbilicoportal* demostró con el estudio angiográfico el patrón vascular intrahepático en cirrosis y fibrosis; la manometría registró la presión portal libre comparándola con la presión hepática ocluída en casos seleccionados.

(3)

Decreased Bile Salt Pool in Patients with Cirrhosis

Z. R. Vlahcevic, I. Buhac, C. C. Bell, Jr., J. T. Farrar and L. Swell. Veterans Administration Hospital and Medical College of Virginia, Richmond, Virginia.

In a recent study we showed that patients with gallstones have a smaller bile salt pool than patients without gallstones. In view of the importance of bile salts in the micellar solubilization of biliary cholesterol, a reduction in the enterohepatic bile salt pool could be a contributing factor to gallstone formation. The aim of this study was to obtain information on the enterohepatic bile salt pool in patients with cirrhosis, since these patients have a higher incidence of gallstones. Eight patients with stable cirrhosis but no ascites and seven patients without liver disease were studied. Bile salt pool measurements were carried out by the isotope dilution procedure following the oral administration of 15-25 μc ^{14}C-cholic acid. Bile rich duodenal fluid was obtained by intubation at daily intervals (4 days) following the stimulation of bile flow by cholecystokinin. Bile acids were isolated by thin layer chromatography and mass was determined by gas liquid chromatography. Patients with cirrhosis had a significantly smaller total bile salt pool as com-

pared to patients without liver disease (1.20 versus 2.51 gm); the component bile salt pools (cholic, chenodeoxycholic, and deoxycholic) were all reduced. Patients with cirrhosis showed almost a complete absence of biliary deoxycholic acid. The cholic acid half life was similar in both groups of patients. However, the daily production of cholic acid was considerably less in the cirrhotics than patients with no liver disease (0.13 versus 0.35 gm/day). These findings suggest that small bile salt pool in patients with cirrhosis is a result of decreased bile acid production by the diseased liver whereas bile salt reabsorption is normal. This is in contrast to patients with gallstones who were also found to have small bile salt pool, but the decrease in pool size is probably secondary to increased bile salt loss, not compensated by increased hepatic synthesis. In both instances, however, after a new steady state is achieved, a smaller bile salt pool results, suggesting that there may be a cause-effect relationship between the bile salt pool size and the pathogenesis of gallstones.

(4)

Intoxicación Aguda por Fósforo Blanco y Valor Terapéutico de los Corticosteroides en el Tratamiento del Coma Hepático.

G. A. Marín, C. Montoya, A. Guzmán y J. L. Sierra. Centro Hospitalario San Juan de Dios, Bogotá, Colombia.

Las altas cifras de mortalidad secundarias a la ingestión de fósforo blanco encontradas en la literatura (50 porciento), han sido obtenidas en base a estudios retrospectivos. En Bogotá, complejos factores socioeconómicos son responsables de una alta incidencia de intentos suicidas con fósforo blanco. Los pacientes así intoxicados fueron entonces estudiados prospectivamente y distribuídos en tres grupos, siguiendo el orden en el cual fueron admitidos al hospital. Todos ellos recibieron idéntico tratamiento inicial, irrespectivamente del grupo al cual habían sido asignados: lavado gástrico, laxantes y líquidos endovenosos. Todos recibieron iguales dosis de neomicina oral y rectal en caso de coma. La única diferencia entre los tres distintos grupos radicó en el suministro de corticosteroides: el Grupo I no los recibió en ningún momento, aún en presencia de coma; el Grupo II los recibió desde el momento mismo del ingreso y hasta el instante de recuperación total o de muerte; en el Grupo III solamente cuando los pacientes presentaron evidencia de coma hepático y mientras la évidencia del mismo persistió.

La mortalidad total fue de un 26 porciento. Evidencia histológica de franca cirrosis hepática fue observada en períodos tan cortos como un mes después de la ingestión del tóxico. El único factor que permitió predecir el curso de la enfermedad, fue el tiempo transcurrido entre el intento suicida y el momento de arribo al hospital: ni dosis, ni vehículo empleado para disolver el fósforo, ni edad fueron factores de importancia en el desarrollo de coma y muerte. De un total de 17 pacientes en el Grupo I, dos presentaron coma hepático y uno murió. De 15 pacientes en el Grupo II, cinco entraron en coma y todos murieron. De los 16 pacientes en el Grupo III, cinco presentaron coma hepático y dos murieron. Aunque el número de pacientes en coma hepático es pequeño y no permite obtener conclusiones estadísticas válidas, la impresión es que los corticosteroides no modifican el curso del coma hepático provocado por la intoxicación con fósforo blanco.

(5)

Fundamentos Fisiopatológicos y Técnica de la Anastomosis Linfovenosa.

M. Waserstein; J. Mañana; y C. Muñoz Monteavaro. Cátedra de Nutrición y Digestivo, Hospital de Clínicas "Dr. Manuel Quintela", Montevideo, Uruguay.

En el presente trabajo se traza esquemáticamente los fundamentos fisiopatológicos del factor linfático en la hipertensión portal de los cirróticos. Se describe someramente la importancia de la hiperproducción linfática en la génesis de la ascitis y los hechos que explican su mejoría mediante la anastomosis quirúrgica linfo venosa cervical.

Con respecto a la técnica quirúrgica se describe la anestesia utilizada, la posición del paciente, la incisión, y los 4 planos quirúrgicos en los que se actúa. Se detallan las maniobras para la individualización y descubierta del canal toráxico y sus ramas y de los elementos venosos. Se describe la táctica utilizada para efectuar la anastomosis linfo venosa.

Se exponen someramente los incidentes, accidentes y complicaciones de esta intervención, así como los cuidados post-operatorios.

Destacamos que es una intervención de poco riesgo quirúrgico, de realización meticulosa porque se trata de microcirugía vascular.

Se describen los excelentes resultados obtenidos para el tratamiento de las ascitis refractarias al tratamiento médico.

Por último, destacamos que los pacientes así tratados quedan en mejores condiciones para efectuarles posteriormente shunts venovenosos u operaciones de desconexión ázigo portal para el tratamiento de la hiper-

tensión portal.

(6)

Anastomosis Linfovenosa en el Tratamiento de la Hipertensión Portal

C. Muñoz Monteavaro; M. Waserstein; J. Mañana; E. Curuchet. Cátedra de Nutrición y Digestivo, Hospital de Clínicas. "Dr. Manuel Quintela", Montevideo, Uruguay.

En 1966 comenzamos a tratar las ascitis y las hemorragias digestivas por várices esófago-gástricas mediante la anastomosis quirúrgica linfovenosa cervical.

Fueron operados 15 casos de cirrosis portal - 11 alcoholistas intensos; 2 moderados y 2 mujeres no alcoholistas.

Cinco fueron operados por hemorragia digestiva masiva por rotura de várices y 10 por ascitis incontrolable médicamente.

Se efectuaron 10 anastomosis linfovenosas. En 7 casos se realizó anastomosis latero lateral de canal toráxico a yugular interna; y en 3 término lateral sobre tutor de canal toráxico a la vena yugular externa. En uno, derivación externa.

La dilatación del canal toráxico no es constante, pero el flujo linfático estaba aumentado en todos los casos. Por ello debe efectuarse la operación aún en los pacientes con canal toráxico fino.

La operación solamente está indicada en los casos con volemia y presión en cava superior normal o baja.

La presión linfática en el cuello fue muy variable y sin relación con la presión intraesplénica.

En ningún caso descendió la hipertensión portal, desaparecieron las várices ni se detuvo la hemorragia en forma duradera.

Fue extraordinaria la mejoría lograda en las ascitis refractarias al tratamiento médico.

(7)

Triada Funcional Diagnóstica durante el curso de la Hepatitis Necrósica Experimental.

A. Rodríguez-Olleros, J. Taveras y F. Landrón, San Juan, Puerto Rico

Durante nuestras investigaciones en perros con la Thioacetamida observamos que en el período álgido de la necrosis se caracterizaba por: una elevación de la bilirrubina a mas de 6 mlg. porciento, un scaning con Rosa de Bengala I 131 extraordinariamente frío manifestándose escasa captación en la zona más densa del hígado, y una elevación moderada de la S.G.O.T. y de la S.L.D.H. Además se produce un desbalance albumina-globulina elevándose considerablemente las globulinas gamma y beta. También se evidencia una retención de la B.S.P. y de la fosfatasa alcalina paralelamente a la altura de la bilirrubinemia.

En un nuevo estudio con 5 perros hemos profundizado más en el análisis de la necrosis haciendo mediciones semanales de la bilirrubina, de la S.G.O.T. y S.L.D.H. y el scanigrama Rosa de Bengala I 131.

Simultáneamente hacíamos biopsias con aguja para ultraestructura y microscopio de luz.

Los resultados han demostrado que el enfriamiento del scaning con Rosa de Bengala I 131 es progresivo y pararelo a la intensidad de la lesión. Las dos enzimas S.G.O.T. y la S.L.D.H. pueden evidenciar en el curso de la necrosis un decremento en relación con su elevación inicial por dos causas contrapuestas: 1) la supresión del tóxico por unos días permite la recuperación de los hepatocitos y los enzimas disminuyen siendo esto un signo de recuperación. Al reanudar el tóxico ocurre una elevación extraordinaria de los enzimas mayor que la inicial siendo esto un signo de recidiva de la lesión. En la infraestructura que precede a esta recidiva se ven unas macromitocondrias adosadas, con cristae anormales y muy pocas de entre ellas completamente degeneradas; 2) Desde esta etapa hasta la necrosis consumada los enzimas van disminuyendo hasta una altura muy moderada final. Esta otra disminución de los enzimas es síntoma de exaustación. La ultraestructura demuestra escasas mitocrondias y profundamente degeneradas.

La bilirrubina en esta etapa muestra la máxima elevación.

Se deduce de estas investigaciones que el scanigrama Rosa de Bengala I 131, la S.G.O.T. y S.L.D.H., y la bilirrubina pueden dar la pauta del curso de una necrosis hepática.

(8)

Seudocolinesterasa en el Diagnóstico y Pronóstico de las Hepatopatías.

Marcos Meeroff y Marcelo Szulc. Policlínico "Prof. Dr. Gregorio Aráoz Alfaro". Río de Janeiro 1910, Lanús-República Argentina.

Se estudió la seudocolinesterasa en la sangre de 87 individuos empleando la técnica de Gomori y se comprobó que:

1. Con la citada técnica el valor normal mínimo es de 65 U. porciento y la cifra promedio de 83 U. porciento.

2. En la hepatitis viral aguda el descenso se anota en la totalidad de los casos, siempre por debajo del citado valor mínimo.

3. En la cirrosis venosa etílica el descenso por debajo del valor mínimo normal se anotó en el 82 porciento de los pacientes.

4. En las colestasis extrahepáticas, mientras no haya daño hepático, los valores son prácticamente normales.

5. En cambio, en los casos de colestasis intrahepática en que se hizo la determinación – todas ellas de origen medicamentoso –, los valores hallados fueron bajos, los que, por su posible utilidad diagnóstica, justifica continuar la investigación.

6. La correlación con la albuminemia fue significativa.

7. Por el contrario, no la comprobaron en el estudio comparativo con la prueba simple de retención de bromosulfaleina ni con el "clearance" del mismo colorante.

(9)

Liver Scanning for Detection of Collateral Circulation in Liver Disease.

Raymond B. Johnson, William M. Lukash. U. S. Naval Hospital, Bethesda, Maryland.

Au^{198} liver scans were performed on 20 patients with chronic diffuse liver disease. The scans were interpreted according to specific objective criteria of degree of liver "mottling," splenic uptake of radioactive tracer and bone-marrow uptake. The total "liver scan score" for each patient was compared with the maximum arterial ammonia concentration obtained during an oral ammonia tolerance test, and a near linear relation was found between these two tests in this group of patients. The results indicated that the Au^{198} liver scan can be useful to determine the degree of portal-systemic collateral circulation in patients with chronic liver disease. Subsequently, to determine whether these liver-scan findings shown to be related to portal-systemic collateral circulation occur only in patients with fibrotic liver disease, 567 hepatic scans with gold (Au^{198}) performed over a six-year period were reviewed. Observance for the same features of liver "mottling," splenic uptake, or bone-marrow uptakc of the isotope showed that one or more of these abnormalities was present in 51 (9.0 percent) of the patients. Evidence of portal-systemic collateral circulation on scan was most prominent in hepatic cirrhosis (76.6 percent); extrahepatic malignancies, acute and chronic hepatitis, hereditary hemorrhagic telangiectasia, and chronic lung disease accounted for the remainder. Evidence of portal-systemic shunting is most common in cirrhosis, and, when seen in the noncirrhotic patient, occurs when portal hypertension and hepatic collateral circulation are likely to be present.

(10)

Comparison of the Diagnostic Accuracy of Liver Scans, Liver Function Tests and Liver Biopsies.

William A. Ferrante, MD and William S. Maxfield, MD. New Orleans, Louisiana

Radioisotope scanning of the liver is a relatively new procedure which the clinician has employed as an aid in the diagnosis of hepatic disease. In an attempt to determine the reliability of liver scans, liver function tests, and percutaneous needle biopsies indicative of hepatic disease, the results of these procedures in 100 patients who had had liver scans were compared with the histologic diagnosis in each patient. All patients had the diagnosis of hepatic disease proved histologically. This was accomplished by needle biopsy in 50, operation in 41, and necropsy in 9. Histologic diagnosis was cirrhosis in 32, metastatic cancer in 25, hepatic abscess in 11, hepatoma in 9, normal liver in 14, hepatitis in 3, amyloid in 1, and granulomatous hepatic disease in 5. All patients included in the study had two or more liver function tests. A "battery" of liver function tests included at least the determination of sulfobromophthalein retention, serum glutamic oxalacetic transaminase, serum glutamic pyruvic transaminase, alkaline phosphatase, total serum protein, serum bibirubin, and albumin globulin ratio. Liver scans were obtained with a commercially available, three inch, rectilinear scintillation scanner employing both photorecording on film and a teledeltose read out system. The routine dose for Au^{198} scans was 100 microcuries, the scans being obtained 30 minutes after injection.

Results: The accuracy of the liver scans for detection of the presence of hepatic disease was 90 percent (Table I). Its accuracy, however, in indicating the specific type of disease was 71 percent. The ratio of false positive to false negative results was about the same for both detection of disease and selection of the specific diagnosis. The diagnostic accuracy of the information provided by the scans compares favorably with that from needle biopsy and is greater than that from the sulfobromophthalein, alkaline phosphatase, and serum glutamic oxalacetic transaminase determination. In this series, percentage of false positive results is lower for the liver function tests

than for the liver scans. Percentage of false negative results, however, was in general much higher for the liver function tests than for the scans. The most accurate diagnostic test was needle biopsy with only four false negative results in 50 cases. In these four cases, however, the liver scan detected disease missed by the needle biopsy. Results in the different diseases were tabulated separately and in an effort to determine where inaccuracies are most likely to occur. In patients with cirrhosis the liver scan was less accurate than the sulfobromophthalein, serum glutamic oxalacetic transaminase, and serum albumin, which tend to reflect accurately diffuse hepatocellular disease. The false negative results accounted for most of the errors in liver scanning and all the errors in the liver function tests. The 96 percent accuracy of the needle biopsy, of course, far exceeds the percentage of accuracy of any other procedure in detection of this disease. In patients with metastatic cancer the phosphatase and sulfobromophthalein determination liver scan was less accurate than both the alkaline phosphatase and sulfobromophthalein determination which are the usual abnormal liver function tests in metastatic cancer. The inaccuracy of the liver scans in detecting metastasis is primarily a problem of false positive diagnosis caused especially by the presence of cirrhosis. Since the inaccuracies of liver function studies and needle biopsy are false negative results in patients with metastatic disease, obtaining both the liver battery and scan, with the scan used to select the site for needle biopsy will give a higher degree of accuracy than any parameter alone. In patients with hepatic abscesses, the hepatic scan was quite accurate. Twelve patients had a scan diagnosis of hepatic abscess, however, there was one false positive in a patient with cirrhosis diagnosed as cirrhosis and hepatic abscess but a histologic diagnosis of cirrhosis only was made. Twelve patients had hepatic scan diagnosis of hepatoma but only nine proved to have histologic evidence of this disorder. The three false positive scan diagnoses of hepatoma were in patients with scan diagnosis of cirrhosis and hepatoma but a histologic diagnosis of cirrhosis only. The so-called pseudo-mass finding of a "cold spot" resulting from a large area of scarring in the liver with resultant shunting accounted for these inaccuracies. In this series, the most accurate single diagnostic test was percutaneous needle biopsy, being positive in 92 percent of the 50 cases in which it was performed, but was closely followed by the 90 percent accuracy of the liver scans. The high degree of accuracy for needle biopsies is due partially to the large number of patients with diffuse hepatocellular disease who had percutaneous needle biopsy and the fact that only 17 of the 45 patients with hepatic tumors larger than 2 centimeters had percutaneous needle biopsy. Since some tests of liver function are more diagnostic of diffuse disease, and others more readily reflect hepatic masses, a "battery" of liver function tests may be more helpful than any single test of liver function in arriving at a specific diagnosis. Seventy-seven patients in this series had a "battery" of liver function tests. The diagnostic accuracy of the tests was comparable to that of the percutaneous needle biopsy and greater than that of the hepatic scan. In diffuse disease of the liver, it would be expected, that hepatic scanning is much less accurate than a series of liver function tests and needle biopsy. The scan may, however, aid the clinician in selected instances of diffuse hepatic disease such as a patient with normal liver function and evidence of portal hypertension or in the presence of a small fibrotic liver inaccessible to percutaneous needle biopsy. Table VI depicts the statistical data concerning these comparisons, and Table VII further divides these statistics into the accuracy according to the different kinds of hepatic disease. In our series, hepatic scan was most accurate for the diagnosis of large lesions of the liver such as hepatic abscesses and hepatomas. In certain selected instances ordering a liver scan as well as liver function test and needle biopsy will provide a greater degree of accuracy since the false negative for the liver function test and needle biopsy may be picked up by the liver scan as shown in Figure 2. The highest percentage of error occurs in patients with cirrhosis and in patients with normal livers incorrectly interpreted as metastasis. In addition to detecting metastatic disease in livers of normal size and those whose function has not been altered the hepatic scan may be especially helpful in patients with marked hepatomegaly in whom by the subcostal approach the biopsy needle can be guided to specific "cold spots" demonstrated in the hepatic scan. Therefore, obtaining a liver scan in patients with normal or equivocal results of liver function but suspected of hepatic disease will yield a high degree of confirmation of presence or absence of abnormality. The recognition of the mottled liver of cirrhosis, and the large "cold spots" created by the so-called "pseudo-mass" of cirrhosis will undoubtedly eliminate one of the greatest areas of diagnostic inaccuracies with liver scanning. Experience with increased number of hepatic scans will eliminate

some of the pitfalls that lead to false positive and false negative diagnoses.

(11)

Isotopos Radioactivos en el Diagnóstico Precoz de la Hipertensión Portal

J. Mg. Esteban y Marquez de Prado, Jefe Servicio Medicina Aparato Digestivo Seguridad Social; J. Mg. Esteban y Bernaldez, Jefe Becarios Clínica Patología Médica Facultad Medicina Madrid Profesor Díaz Rubio. (España)

1. La gammagrafía hepática por sí sola con una sola imagen no es suficiente para aclarar si existen o no tumores o quistes intrahepáticos.

2. Con el análisis fotográfico de la prueba podemos llegar a delimitar la situación de los mismos.

3. Con la densitometría podemos sacar el porcentaje de hígado sano con el que contamos.

4. Con el flujo sanguíneo hepático nos damos cuenta del estado inicial de la hipertensión portal.

5. Para poder realizar una intervención dentro del árbol portal en sus distintas derivaciones, es necesario que el flujo sanguíneo hepático no sea inferior al 20 porciento y es necesario también que el porcentaje de hígado sano determinado por la densitometría no sea inferior al 45 porciento.

6. Si las pruebas analíticas no son positivas demuestra que el quiste hidatídico no ha influído más que en las zonas destructivas sin tocar la integridad del parenquima en las restantes y lo mismo decimos cuando el parenquima ha sido invadido por una reacción tumoral.

(12)

Determinación Simultánea del Flujo-Sanguíneo y de la Función de la Célula Poligomal Hepática con el Uso de Radio-Isótopos en 30 Sujetos Sanos a Nivel del Mar

Dres. Fernando Valero Sánchez Concha, Herbert Villanueva Meyer y Ernesto Delgado Febres, Departamentos de Medicina Interna y Medicina Nuclear de la Clínica San Felipe, Lima, Perú.

Se han estudiado 30 sujetos sanos nativos o residentes de más de 1 año 6 meses a nivel del mar, cuya área corporal promedio fue de $\bar{x}$ = 1.76 mts^2, utilizando el método de determinación simultánea de dos radios-isótopos Au ^{198} y R.B-I^{131}* por el sistema de espectrometría — gamma para valorar el flujo sanguíneo hepático y la función de la célula poligonal hepática.

En la dosis del coloide Au^{198} se ha utilizado menos que la "dosis crítica".

Los resultados son:

T 1/2 Au^{198} promedio $\bar{x}$ = 3.42 minutos con $\overline{2DS}$ ± 0.96.

K promedio $\bar{x}$ = 0.206 $\overline{DS}$ ± 0.031.

T 1/2 R.B-I^{131} promedio $\bar{x}$ = 12.14 minutos con $\overline{2DS}$ ± 2.34.

* Radio-isótopos utilizados fueron de los Laboratorios *Hoechst.*

(13)

Pathophysiology of Jaundice

Stephen H. Robinson, Assistant Professor of Medicine, Harvard Medical School; Associate Physician, Beth Israel Hospital.

Jaundice is the result either of the overproduction of bilirubin or impaired excretion of this pigment in the liver or biliary tree. Three sources of bilirubin production have now been described, and each of these is a potential source of hyperbilirubinemia. Most commonly overproduction of bilirubin is the result of hemolysis of circulating red blood cells. In addition, patients with disorders of erythropoiesis (thalassemia, pernicious anemia, sideroblastic anemia, etc.) may have increased bilirubin production as the result of hemolysis of erythroid precursors in the bone marrow or soon after release into the peripheral blood, i. e. ineffective erythropoiesis. Finally, we have recently demonstrated increased bilirubin production from nonhemoglobin sources in the liver in animals with a variety of conditions affecting liver function.

Bilirubin excretion by the liver occurs in three phases, and abnormalities in each of these may also lead to jaundice. It has been suggested that the uptake of bilirubin from plasma into the liver cell may be abnormal in "Gilbert's Disease". Impaired conjugations of bilirubin is found in patients with the Crigler-Najjar syndrome and other related disorders. An abnormality in the secretion of conjugated bilirubin into bile accounts for the jaundice in the Dubin-Johnson syndrome and, probably by another mechanism, benign recurrent cholestasis and recurrent jaundice of pregnancy. Many drugs also affect the secretory step. Acquired liver disease leads to jaundice through several of the above mechanisms, but the step most sensitive to liver injury appears to be bilirubin secretion from the liver cell into bile.

(14)

Current Analysis of the Therapeutic Portacaval Shunt

Francis C. Jackson, MD, Chief Surgeon, VA Hospital Pittsburgh, Pa. 15240; Professor of Surgery, University of Pittsburgh, School of Medicine.

Since January 1, 1962, 279 patients have been randomized for medical therapy or portacaval shunt following one or more episodes of bleeding from esophagogastric varices.

A comprehensive survival analysis of these randomized patients will be presented. Particular attention will be paid to the medical control group of patients who also received a portacaval shunt either as an emergency or as an elective procedure following a re-hemorrhage.

Currently, if the analysis is only extended to the initial randomization there is no statistical significance between the survivorship in the medical and shunted groups. This report, therefore, will provide the first analysis of an impure control series since a significant number of patients re-hemorrhaged and survived for a variety of reasons. This re-hemorrhage rate was 40 percent in the control group and only 5 percent in the shunted group when those shunts which had thrombosed were excluded.

A number of significant elements in the selection of patients for surgery will be discussed as related to survival, including continued alcoholism, peptic ulcer, liver failure including encephalopathy, age, duration of the disease, etc.

(15)

Resultados de la Derivación Vascular en los Síndromes Portales. Experiencia sobre 86 Casos Intervenidos.

M. Hidalgo Huerta, Ciudad Sanitaria Provincial "Francisco Franco". - Madrid (España)

En el presente trabajo se analizan los resultados obtenidos mediante diversas variantes de derivación vascular porto-cava en el tratamiento de hipertensiones portales intra o extrahepáticas. Comprende 86 casos de los cuales 77 (89.53 porciento) corresponden a bloqueos intrahepáticos y 9 (10.46 porciento) a bloqueos extrahepáticos.

Dentro de los bloqueos intrahepáticos 30 son cirrosis de Laennec, 16 cirrosis posthepatitis, 24 cirrosis varias de otros tipos (estrellada, esplenogena, infantil, macronodular), 3 asociadas con síndrome de Cruveilhier-Baungarten, 2 cirrosis atróficas, 3 espacioportitis sin cirrosis. Los bloqueos extrahepáticos comprenden 1 trombosis porta con recanalización, 1 por onfalitis, 5 cavernoma portal, 2 de origen indeterminado.

66 varones y 11 hembras integran el primer grupo, 6 varones y 3 hembras el segundo. Después de un análisis estadístico de las diversas circunstancias clínicas y analíticas de ambos procesos se valoran los resultados operatorios. Se han practicado en los bloqueos intrahepáticos 57 anastomosis porto-cavas termino-laterales,1 latero-lateral, 1 doble porto-cava termino-lateral, 18 anastomosis espleno-renales termino-laterales. En los bloqueos extrahepáticos 1 anastomosis porto-cava termino-lateral, 5 anastomosis esplenorenales, 2 anastomosis cavo-mesentéricas termino-laterales y 1 anastomosis mesentérico-iliaca.

La mortalidad global ha sido de 23 casos (26.7 porciento), la totalidad de la cual recae en los bloqueos intrahepáticos, mientras que en los extrahepáticos no hay que lamentar ninguna. Las cifras de mortalidad se han ido disminuyendo paulatinamente desde el año 1,954 a la actualidad, hasta reducirla a un 11.7 porciento, en virtud de una mejor selección de los pacientes especialmente en lo que se refiere a los niveles de seroalbumina y grado de positividad en la prueba de Hanger, como estadísticamente se presenta.

Se llega a la conclusión de que la derivación vascular es sumamente útil, ya que anula la presentación de hemorragias, pero debe sentarse cuidadosamente su indicación, pues en otro caso, la mortalidad es muy alta.

II. ESTOMAGO–DUODENO
II. STOMACH–DUODENUM

(16)

Carcinoma Gástrico. Revisión estadística.

J. Añez B. y E. Portillo F. Departamento de Gastroenterología, Hospital Universitario de Maracaibo, Venezuela.

Se revisan los casos de *Carcinoma Gástrico* de los Servicios de Gastroenterología del Hospital Quirúrgico y Universitario de Maracaibo, entre los años de 1951-1968.

Se discuten los factores etiológicos: sexo, raza, ocupación, lugar de nacimiento, diferencias urbano-rurales, hábitos, factores socio-económicos, grupo sanguíneo, histopatología y operabilidad.

Se discuten los síntomas y signos de la afección. Se observa la relación entre el tumor abdominal palpable y la evolución del proceso. Se revisan los métodos de diagnóstico: rayos X, quimismo gástrico, endoscopia, citología, fluorescencia con tetraciclinas; determinando el porcentaje de utilidad de cada uno de ellos.

(17)

El Test de la Pentagastrina Inhalada.

J. C. Meeroff, N. Marchewsky y M. Meeroff. Servicio de Gastroenterología del Sanatorio Metropolitano.

Decidimos utilizar el test de la pentagastrina inhalada como éxcitosecretor gástrico, alentados por los resultados obtenidos por K. G. Wormsley en Inglaterra con el "snuff" de pentapéptido.

Estudiamos la respuesta secretoria gástrica en una serie seleccionada de 40 pacientes. Utilizamos dosis menores a las empleadas por los ingleses y obtuvimos buena respuesta con 4 mg. como dosis única independientemente del peso corporal en una única inhalación tipo nebulización.

No tuvimos reacciones secundarias por la inhalación de la droga y dejamos sentado que utilizamos la misma droga que para la inyección intramuscular vehiculizada en oxígeno para realizar la nebulización.

Estudiamos en todos los casos la totalidad de los constituyentes del gastroionograma con la técnica de Moore-Scarlata modificada y ampliada por nosotros (que fue presentado en el X Congreso Panamericano de Lima) y realizamos severo control bioestadístico de los resultados.

Finalmente se comentan las bondades y los defectos de la nueva vía de aplicación del gastroestimulante.

(18)

Tratamiento de la Ulcera Gástrica Trófica.

Marcos Meeroff y José C. Meeroff. Policlínico "Prof. Dr. C. Aráoz Alfaro" - Río de Janeiro 1910-Lanús-República Argentina.

Los A. A. diferencian netamente la úlcera gástrica *péptica* de la úlcera gástrica *trófica.*

Encuentran esta última con más frecuencia que la primera, cursando con valores bajos de clorhidria y francas lesiones de la mucosa gástrica. Incluyen en dicha categoría las úlceras agudas por "stress", las úlceras en individuos desnutridos, la mayor parte de las úlceras de los gerontes y fundamentalmente las úlceras gigantes.

Si bien con cierta frecuencia se complican con hemorragias, en ocasiones masivas, evolucionan rápidamente hacia la curación cuando se someten a un tratamiento destinado a mejorar el estado nutricional local y general y eliminar el factor flogósico.

Los recursos conducentes al logro de los objetivos señalados son básicamente los siguientes:

1. Alimentación suficiente.
2. Medicación antiflogística local y parenteral.
3. Medicación eutrófica hasta llegar incluso a las pequeñas y repetidas transfusiones de sangre.
4. Medicación tópica gástrica.

(19)

La Técnica de la Concentración del Jugo Gástrico.

J. C. Meeroff, J. Rofrano y Elizabeth Sanz. Servicio de Gastroenterología del Sanatorio Metropolitano. Buenos Aires-República Argentina.

Conocido es el problema que plantea la escasa concentración de los elementos orgánicos especialmente

los proteicos en el jugo gástrico, para intentar su análisis. Ello obliga a la necesidad de extraer agua y electrólitos del jugo gástrico hasta obtener concentraciones aceptables del material orgánico. Este procedimiento no es fácil y no está aún standarizado por lo cual creímos conveniente realizar un estudio detenido de las posibilidades de su realización con métodos sencillos, económicos, seguros y repetibles.

Analizamos detenidamente de acuerdo a nuestra experiencia las técnicas de extracción, de neutralización *in vivo* e *in vitro* y el manejo y conservación del jugo extraído. Luego analizamos las bondades de los diferentes sistemas de concentración utilizando drogas tales como carbowax, goma arábiga, azúcar común, etc., y los aparatos automáticos de membrana.

Finalmente comentamos las pruebas de control para apreciar la calidad de las concentraciones y resumimos la técnica que nos parece más aceptable a nuestro propósito.

(20)

Mucosal Changes Incident to Immune Rejection of Canine Gastric Homografts.

J. C. Thompson, G. M. Nemhauser, W. D. Davidson, L. Zamboni, and J. H. Miller. From the Departments of Surg., Med. & Path., Harbor Gen. Hosp., 1000 W. Carson St., Torrance, Calif. and UCLA School of Medicine.

We have performed more than 150 canine gastric homotransplants in experiments designed to test antral and fundic function and to study immunosuppresive techniques. Attempts at immune rejection of gastric homografts are heralded by fundic achlorhydria which is reversible with immunosuppresive therapy. This may be due to parietal-cell failure of acid production or to a later loss of gastric acid by back-diffusion through damaged mucosa. *Methods:* This problem was studied in adult mongrel dogs, 12 with autogenous and 17 with homografted gastric pouches. Transplanted pouches were studied during periods of tolerance (denoted by brisk secretory response to stimuli) and during periods of impending rejection (i. e., at onset of achlorhydric response to stimuli). The permeability of fundic mucosa of a) autogenous Heidenhain pouches (HP), b) tolerated homografts (TH), and c) rejecting homografts (RH) was studied by distending the pouches for 90 minutes with albumin ^{131}I, inulin, glucose, or HCI. Acid production of the pouches was tested by instilling glucine into pouches for 90 minutes following the subcutaneous administration of 1 mg. histamine base. Glycine combines with any acid delivered to lumen and prevents back-diffusion. Fundic mucosal concentration of histamine was studied in 12HP, 13TH, and 6RH. *Results:* A. Permeability (percent lost) = albumin ^{131}I: HP-20 percent, TH-13 percent, RH-23 percent; *inulin:* HP-9 percent, TH-12 percent, RH-49 percent; *glucose:* TH-42 percent, RH-72 percent: *HCI:* HP-23 percent, TH-35 percent, RH-50 percent. B. Acid production (mEq. HCI bound to glycine) = HP-2.88, TH-2.27, RH-0.02. C. Mucosal histamine (mcg/gm fundic mucosa) = HP-62, TH-71, RH-91. Electron microscopic studies of parietal cells show early changes in intracellular secretory ultrastructure coinciding with pre-rejection achlorhydria. *Conclusions:* Rejecting gastric homografts have larger concentrations of mucosal histamine and show increased mucosal permeability compared with tolerated grafts or autogenous pouches. Nonetheless, achlorhydria associated with rejection is apparently due to injury to the parietal cell itself resulting in failure of acid production.

Supported by USPHS Grants AM-07961 and AM-07962, and by a grant from the John A. Hartford Foundation, Inc.

(21)

Ulcera Marginal: Consideraciones en Base al Estudio de Diecisiete Casos.

J. A. Ortega. Servicio de Gastroenterología del Hospital Central de las F. F. A. A. y del Hospital General del Seguro Social Obligatorio, Caracas, Venezuela.

Se analizó la precisión de los diversos métodos de diagnóstico al utilizarlos en forma sistemática en todo paciente con sospecha de úlcera marginal y se evaluó el resultado del tratamiento instaurado. La hemorragia fue la queja principal, seguida del dolor abdominal. El estudio cuantitativo de la secreción gástrica ayudó a determinar la causa de la recurrencia, teniendo implicaciones de índole terapéutica. La producción total de ácido fue mayor de 10 mEq/h en 9 de 15 casos examinados. La prueba del cordel fue positiva en el 75 porciento de los pacientes. El estudio radiológico demostró la lesión, solo en 5 casos; por el contrario, la endoscopia evidenció la úlcera en los 14 pacientes examinados, estando la lesión localizada en el borde gástrico en 9 casos. En la evaluación del tratamiento, se consideró solamente la cura o recurrencia de la úlcera. En todos los casos, la evolución fue satisfactoria, practicándosele controles posteriores de secreción gástrica, estudio radiológico

y gastroscópico. La exploración endoscópica resultó el método diagnóstico de mayor efectividad. No ha habido recidiva hasta el presente; considerando prudente utilizar como guía en la terapéutica, los valores del quimismo gástrico, asociado a la historia clínica y al estudio radiológico.

(22)

La Gastritis como Precursora del Cáncer Gástrico y otras Enfermedades del Estómago.

Dres. J. Valencia-Parparcén, G. d'Escriván y M. de González. Hospital Privado Centro Médico de Caracas, Venezuela.

Se revisaron 3,500 historias sucesivas de una Unidad de Gastroenterología y se clasificaron dos series pertenecientes: la primera a 300 enfermos de gastritis superficial y la segunda a 300 con gastritis atrófica seguidos durante diez años, y diagnosticados mediante biopsias gástricas sucesivas. En la serie de los normales se encontraron procesos gástricos en 193 pacientes (5.7 porciento). En los 300 casos de gastritis superficial se encontraron 52 pacientes con procesos gástricos (17.3 porciento). De los 300 casos de gastritis atrófica se encontraron 86 pacientes con procesos gástricos (28.6 porciento). En ninguno de nuestros pacientes pudo comprobarse la anemia perniciosa. Parece evidente, en vista de estas cifras y a base de estas series estudiadas, que las enfermedades del estómago se hacen más frecuentes a medida que se tornan más intensos los procesos inflamatorios difusos del estómago. Y esto se acentúa más en relación al cáncer y a los pólipos si comparamos las dos series de gastritis superficial y atrófica, ya que en la primera se encontraron 7 pólipos y 14 enfermos con cáncer o sospecha de cáncer, mientras que en la segunda el hallazgo fue de 13 pólipos y 37 lesiones sospechosas de cáncer. Por los resultados de esta serie, parece recomendable la gastrectomía parcial en aquellos enfermos que cursan con gastritis atrófica, o gastritis superficial severa con aclorhidria, y en los que presentan pólipos o imágenes radiológicas o gastroscópicas sospechosas de cáncer gástrico.

(23)

Ulcera Péptica e Cardiopatia Isquêmica.

J. F. Pontes e D. P. García. Instituto Brasileiro de Estudos e Pesquisas de Gastroenterologia, Sao Paulo, Brasil.

Os autores investigam se coronariopatia é mais freqüente em indivíduos com úlcera péptica do que em nao ulcerosos. Foram estudados 150 indivíduos, dos quais 75 eram portadores de úlcera péptica e 75 apresentavam outras afecções do aparelho digestivo. Em todos os pacientes foi feito o exame clínico completo do aparelho digestivo, o eletrocardiograma, o lipidograma, e determinada a colesterolemia; deu-se atenção aos hábitos alimentares, à personalidade e a situação sócio-econômica e profissional. Entre os 75 pacientes com úlcera péptica, 16 exibiram alterações eletrocardiográficas compatíveis com o diagnóstico de cardiopatia aterosclerótica, enquanto no grupo contrôle sòmente um indivíduo mostrou as mesmas alterações. A estatística x^2 demonstrou que a proporção de coronariopatias entre os ulcerosos é significativamente maior. Entre as prováveis causas da maior incidência de cardiopatia isquêmica nos pacientes com úlcera péptica, os autores realçam a importância dos fatores psicológicos. Nao foi encontrada relação com o tipo de dieta seguida nos últimos 6 mêses.

(24)

An Improved Collection Technique for Gastric Exfoliative Cytology.

J. Wenger, M. D., VA Hospital and Department of Medicine, Emory University School of Medicine, Atlanta, Georgia, 30329

Exfoliative cytologic study of the stomach has been shown to be of diagnostic value in cancer of the stomach. Raskin in the USA and Bastos and Madeira in Spain have emphasized the value of mechanical devices which lavage the gastric mucosa with fluids under high pressure and which retrieve the fluid with a low vacuum pressure. Over a four year period more than 500 tests were performed with an apparatus which consists of a pump, a reservoir system and a special stomach tube. This system delivers 300 ml of fluid within 15 seconds and then retrieves it in 30 - 60 seconds. The duration of the test is only 12 minutes while the patient is seated comfortably in a chair. There have been no ill effects during or after any of the 500 procedures. The fluids employed are 0.15 M acetate buffer at pH 6.0 and Hanks' tissue culture fluid at pH 7.4. Our accuracy is comparable to that reported by other investigators: 99.5 percent in proved benign cases and 88.9 percent in proved malignant cases. The use of a mechanical device to assist in lavage of the stomach shortens the duration of the procedure and increases the exfoliation of gastric cells from a large surface area of the stomach; this done without loss of cytologic accuracy. A short movie film will be shown to illustrate the operation of the

gastric lavage apparatus.

(25)

Accelerated Healing of Gastric Ulcer Treated by Inhibition of Gastric Pepsin

D. S. Zimmon, A. Van Caneghem, R. Coy, and M. A. Tessler, Veterans Administration Hospital, New York, N. Y.

SN-263 (Depepsen) is a synthetic sulfate amylopectin polysaccharide of molecular weight greater than 1 million, derived from potato starch and designed specifically to block acid gastric proteases. The protocol prescribed 0.5 gms. of SN-263 hourly for 12 doses. (9 A.M. to 8 P.M.) Sun had previously demonstrated this dose produced 50 percent inhibition of luminal peptic activity in man for 30 minutes with considerable residual inhibition at 1 hour. Neither anticholinergics nor antacids were prescribed. Patients were ambulatory in hospital and ate an unmodified house diet. Healing was estimated from changes in ulcer area measured by serial radiography. Gastroscopy was used to exclude malignancy and confirm healing. In the 46 patients studied the healing rate of treated ulcers (n=19) 6.7±7.1 mm^2 per day (mean= S. D.) was increased as compared to those receiving a placebo (n=27) 2.2+3.0 mm^2 per day ($p=< 0.02$). Furthermore, five of the ulcers receiving the placebo failed to decrease in size while all the treated ulcers progressed toward healing ($p=< 0.20$). In the treated group 6 of 19 ulcers healed completely during the study while in the control group 4 of 27 ulcers healed ($p=> 0.50$). The relationship of initial ulcer size and healing rate was explored by constructing the mathematical best fit regression line for both placebo and treated ulcers. A significant linear correlation between initial ulcer size and healing rate was demonstrable in both groups ($r= 0.844$ treated, $r= 0.747$ placebo). The regression line slope for the treated group was 2.4 times greater than the control ($p=< 0.02$) and indicates an increase in healing rate for treated ulcers of all sizes. The high correlation of the data with these regressions indicates the major variable effecting the healing of gastric ulcer in this study was initial ulcer size. The maintenance of high correlation with increase in slope in the treated group of patients indicates accelerated healing of treated ulcers of all sizes. This data confirms the role of gastric proteolytic activity in chronic gastric ulcer and demonstrates the efficacy of this therapeutic agent in accelerating the healing of gastric ulcer.

(26)

The Interposed Jejunal Limb in Reconstructive Gastric Surgery

C. Cooper Bell, Jr., Z. Reno Vlahcevic, James S. Wolf, Divisions of Surgery and Medicine at McGuire Veterans Administration Hospital, Departments of Surgery and Medicine, Medical College of Virginia, Richmond, Virginia.

Since 1960, 813 patients have had gastric surgery for peptic ulcer or neoplasm with a mortality of 1.2 percent. Seventeen patients had an interposed isoperistaltic jejunal limb; nine for conversion of Billroth II to Billroth I for dumping or alkaline gastritis, and eight to reestablish continuity following total gastrectomy for cancer or the Zollinger-Ellison syndrome. There were no operative deaths. The initial results in the cancer group were excellent with no operative complications. Four of the five patients ultimately died of recurrent carcinoma, but the jejunal limb functioned satisfactorily until the patient's death (4 - 17 months). The patients in the Zollinger-Ellison group likewise had excellent results; all have gained weight, have normal hemoglobin, and have returned to work. Follow-up is one to six years. The results are less satisfactory in treating the sequelae of partial gastrectomy. Five of these nine patients have gained weight, and all had less distressing dumping symptoms. Oral antibiotics significantly alleviated the symptoms in the alkaline gastritis patients, and marked improvement was also noted at gastroscopy. This series, one of the largest reported in this country, emphasizes that only a very small percentage of post gastrectomy patients require additional surgery for relief of dumping symptoms. *Conclusions:* (1) Total gastrectomy with isoperistaltic jejunal interposition is satisfactory - no deaths or complications, is technically easy, and weight is maintained. (2) Conversion of Billroth II to Billroth I with jejunal interposition has adequately controlled subjective symptoms of severe dumping, but concurrent therapy and lack of objective parameters of evaluation make objective assessment of results for dumping difficult.

(27)

Technetium 99m Gastric Scanning: Technique, Diagnostic Correlation and Relationship to Maximum Gastric Stimulation.

G. I. Hiller, S. C. Chen and A. Ramasamy. Providence Hospital, Southfield, Michigan, U. S. A.

Tc 99m gastric scanning in the human was first reported by Herbert in 1965. Hardin in 1967 studied 10 normal subjects and found that Tc 99m localized in the stomach in sufficient concentration

to produce good outlines of that organ. In 1967 Irvine attempted to correlate gastric acid secretion and volume with Tc 99m transfer across the gastric wall and found a somewhat linear relationship with volume. Patients with hypochlorhydria transferred the isotope somewhat less rapidly than normal subjects. Correlation with intrinsic factor production was less obvious. Tc 99m belongs to the VII group in the periodic table and has biologic properties similar to iodine and bromine. It has a half life of approximately 6 hours, 1.40 Kev gamma emission and no beta radiation. These characteristics make it an ideal scanning agent. The purpose of this report is to exploit some of the usefulness of Tc 99m as a gastric scanning agent.

Ten subjects were selected for study on the basis of normal stomachs established by negative upper gastrointestinal x-rays, gastroscopy, gastric photography and other appropriate investigation. After gastric intubation, 1 MC Tc 99m was injected intravenously. Fifteen minutes later, histalog 1.5 mg per kg/bw was injected intramuscularly. Beginning with the injection of Tc 99m, 5 consecutive 15 minute specimens were obtained by constant hand aspiration. Volume, acidity and radiation counts were obtained on all specimens. Total acidity was measured by titration to pH 7.0 using a pH meter. Scanning was done for each 15 minute period in the anterior-posterior plane only. Forty patients with gastric disease including carcinoma, leiomyosarcoma, malignant ulcer, benign ulcer and lymphoma were studied by means of radiography, gastroscopy, gastric photography and Tc 99m scanning.

Most satisfactory outlining of the stomach occurred uniformly in all 19 patients during the second 15 minute period of scanning. Later scans were often obscured by uptake of Tc 99m in adjacent organs and tissue. (2 examples, 5 black and white slides, 5 color scan slides).

In 5 of the 10 normal subjects a significant linear relationship existed between volume of gastric secretions and radiation count in each 15 minute specimen. In no instance did total acidity relate to radiation count. (4 examples, 4 slides).

In the pathologic series, apparent concentration of the isotope in malignant tissue occurred in 5 patients with adenocarcinoma and in 1 each with scirrhous carcinoma, lymphoma and leiomyosarcoma. One patient with a large fundal carcinoma exhibited a negative defect with no uptake of the isotope in the malignant tissue. Other patients with malignant ulcer, benign ulcer, gastritis and 2 small adenocarcinomas had normal gastric scans. (8 examples prepared with color slides correlating radiographic findings, gastric photography and Tc 99m gastric scans. Material presented dependent on the time element).

It is concluded that the optimal scanning time will be 15 to 20 minutes after the injection of 1 MC Tc 99m and the duration of the scan will last for not more than 15 minutes. This provides an acceptable outline of the stomach without obscuration by uptake of Tc 99m in adjacent organs and tissue. A rank correlation factor of more than 0.90 in 5 of the 10 normal subjects significantly relates volume production of gastric secretion to radiation count in each specimen during fractional analysis using histalog for maximal stimulation. Apparent concentration of the isotope in gastric malignant tissue indicates the need for further investigation on a broad scale.

(28)

La Secreción Gástrica en Andinos Residentes a Nivel del Mar.

C. Garrido Klinge, L. Santa Cruz y O. Pimentel. Consultorio Externo de Gastroenterología, Hospital A. Loayza.

En estudios anteriores se observó que el andino es un hiposecretor gástrico y que las respuestas a la estimulación histamínica hechas en la altura con la dosis máxima propuesta por Kay, no eran similares a las encontradas a nivel del mar. Cuando esta dosis fue aumentada en 50 porciento, observamos con sorpresa que las respuestas secretorias también se incrementaron.

Se especuló que este fenómeno pudiera ser debido a factores de tipo ambiental, de adaptación a las grandes alturas, por esto se ha hecho el presente trabajo repitiendo el experimento en andinos residentes más de 2 años a nivel del mar. Los resultados muestran que las respuestas secretorias son similares a las encontradas en la altura, lo que indicaría una característica posiblemente racial.

(29)

Gastric Cancer - Increased Frequency in Patients with Abnormal Gastric Mucosa.

H. L. Segal and I. M. Samloff, University of Rochester School of Medicine and Dentistry, Rochester, N. Y.

The random testing of 1790 individuals by tubeless gastric analysis during the 5-year period 1954-1959 revealed 689 achlorhydric patients and 1101 secretors. None had evidence of gastric ulcer or gastric cancer at the time of the initial tubeless gastric analysis.

There were 923 males and 867 females in the entire group with approximately equal numbers of each sex in age groups ranging from under 40 to over 70. The 1790 subjects were followed until 1965 to determine whether the possibility of developing gastric cancer was greater in the achlorhydric than in the acid secreting group. Gastric carcinoma developed in 3 (0.27 percent) of the acid secretors and in 16 (2.3 percent) of the achlorhydric group. Thus, the frequency of gastric cancer in achlorhydric individuals was almost tenfold that which occurred in the acid secretors of comparable ages. The establishment of a relationship between gastric carcinoma and abnormal gastric mucosa as defined by achlorhydria is reinforced by the parallel rise in the frequency of achlorhydria and gastric malignancy with advancing age; the increase noted in the frequency of achlorhydria from about 19 percent in the 5th decade to 69 percent in the 8th decade was associated with an increase in the frequency of gastric carcinoma from 1.5 percent to 3.4 percent in the same age groups. By contrast the frequency of gastric carcinoma among the acid secretors did not change with advancing age as demonstrated by an incidence of 0.72 percent and 0.76 percent, respectively in the 6th and 8th decades. Pertinent data and literature will be presented to confirm the correlation of achlorhydria with an abnormal gastric mucosa and to emphasize the reliability of measuring gastric acid by tubeless gastric analysis and the importance of knowing the secretory state of the gastric mucosa not only in the follow-up of the patients with abnormal gastric mucosa but also in the screening of patients for the early detection of gastric malignancy and of vitamin B_{12} deficiency.

(30)

La Ulcera Gastroduodenal Perforada con Sangramiento Concomitante. Revisión de un Viejo Aforismo

Dr. Jorge Mañach II, Catedrático Auxiliar, Departamento de Medicina, Universidad de Puerto Rico

Se ha dicho, reiteradamente, que las úlceras que sangran no perforan y las perforaciones por úlcera gastroduodenal no se acompañan de sangramiento concomitante. El presente estudio es una indagación en torno a esa premisa.

1. Se encontraron 16 casos de hemorragia y perforación concomitantes entre 152 pacientes con 157 episodios de úlcera péptica perforada, ingresados en el Hospital Universitario (Universidad de Puerto Rico), durante un período de 19 años. (1950-1968 incl.).

2. El 10.5 porciento de los pacientes desarrolló la doble complicación. Esto indica que, si bien la asociación simultánea de hemorragia y perforación no es frecuente en el cronopatograma de la úlcera gastroduodenal, la misma no es tan rara como, a veces, se ha querido suponer.

3. La doble complicación puede presentarse a cualquier edad; sin embargo la edad promedio de 53 años superó en una década a la correspondiente a las perforaciones sin sangramiento.

4. Aunque el sexo masculino predomina para las perforaciones en general, se pudo observar un incremento relativo para el sexo femenino en los casos de sangramiento concomitante.

5. La doble complicación tuvo una mortalidad de un 60 porciento mientras que ésta fue de sólo un 8.8 porciento cuando no hubo sangramiento. En ambos grupos la causa de muerte fue por peritonitis generalizada, siendo la edad avanzada, enfermedades asociadas importantes y el tiempo transcurrido entre el estreno de la perforación y el acto quirúrgico, en orden decreciente, los principales factores contribuyentes.

6. Contrario a lo que se anticipaba, cuando hubo hemorragia concomitante, el grado de la misma no influyó en la mortalidad.

7. Se enfatiza la importancia del reconocimiento temprano de perforación frente a todo caso de sangramiento gastrointestinal, esté o no acompañado de dolor abdominal.

8. Se discuten los procedimientos quirúrgicos actuales concluyéndose que en los casos de doble complicación la gastrectomía parcial temprana o inmediata es el tratamiento idóneo al presente.

(31)

Cáncer Gástrico y República Dominicana. Generalidades

M. A. Logroño Batlle, Aulio R. Brea y M. A. Delgado Batlle, Hospital Dr. Salvador B. Gautier.

Exposición en líneas generales de varios aspectos del cáncer gástrico y República Dominicana fundamentada en estadísticas de 12,000 estudios biópsicos realizados en el Hospital Dr. Salvador B. Gautier, IDSS, durante 15 años y 8 meses (sept. 1953 - mayo 1969), con la finalidad de ofrecer nuestra experiencia en la incidencia relativa del carcinoma del estómago en nuestro medio. De esas 12,000 biopsias, 81 fueron tumores gástricos (benignos y malignos); 75 fueron

adenocarcinomas; 4 resultaron ser leiomiomas, 1 leiomiosarcoma y 1 neurilemoma. Durante ese lapso se practicaron 430 gastrectomías. Se presentan estadísticas del cáncer gástrico en relación con las neoplasias en general y particularmente con las del tracto gastrointestinal y sus glándulas anejas. Se hace estudio comparativo de neoplasias gástricas benignas y malignas, observándose un porcentaje de 93.8 porciento de tumores malignos versus 6.2 porciento de tumores benignos. Se concluye presentando un cuadro estadístico que demuestra un aumento de casos de cáncer gástrico diagnosticados en el Hospital Gautier en los últimos años. El Hospital Dr. Salvador B. Gautier, IDSS, es una Institución al servicio de la clase obrera dominicana.

(32)

Estudios Histopatológicos y Clínicos de 3 Casos de Leiomioblastoma del Estómago (Uno con Ultraestructura)

H. Monges, A. Chamlian, G. Gasperini, J. Salducci, J. P. Delmont. Departamentos de Gastroenterología y Histopatología (P. Laffargue). Facultad de Marsella.

Presentación de 3 nuevos casos de tumor mioïde (MARTIN) o leiomioblastoma (STOUT) del estómago. Dos casos (61 y 63 años) empezaron por una hemorragia digestiva; el tercero (65 años) por un síndrome doloroso y febril del epigastrio (necrosis inflamatoria de un voluminoso tumor). Imagines radiológicas de lagunas del antro y de compresión extrínseca. Gastrectomía parcial en los 3 casos, sin recidiva, respectivamente, 5 años, 1 año y seis meses después. Aspecto histopatológico óptico clásico. En 1 caso el microscopio electrónico ha mostrado fibras musculares, de estructura periódica semejantes a las descritas en las células musculares lisas normales, confirmando el origen muscular de estos tumores.

(33)

Acción del Glycopyrrolato, Tybamato y de la Asociación Glycopyrrolato-Tybamato sobre la Secreción Gástrica en Pacientes con Ulcera Duodenal

L. Ayala y A. Chahud, Hospital Central del Empleado. Lima, Perú

Los autores estudian la acción sobre la secreción gástrica de 3 drogas: Glycopyrrolato (Robinul), Tybamato (Tybatran) y la asociación de ambas drogas en 9 pacientes portadores de úlcera duodenal.

El estudio es efectuado mediante tubajes gástricos en 3 días sucesivos y cuyos resultados son comparados con la secreción gástrica obtenida durante la administración de un placebo, también en días sucesivos.

La administración del placebo se efectuó en forma simplemente ciega y la administración de los 3 productos de investigación en forma doblemente ciega.

Los resultados obtenidos demuestran que la disminución de la secreción gástrica tanto de la acidez como del volumen, son más manitos cuando se emplea la asociación Robinul-Tybatran, es decir, un anticolinérgico asociado a un sedante; siguiendo en efectividad el Robinul y esta disminución es menos manifiesta cuando se emplea el Tybatran en forma aislada.

Los efectos secundarios que se detectaron fueron muy escasos. Solo un paciente que recibió el Tybatran presentó sensación nauseosa, ninguno de los otros casos manifestó visión borrosa, retención urinaria, boca seca, somnolencia, reacciones alérgicas u otras reacciones secundarias de los anticolinérgicos o sedantes.

(34)

Fístula Colecisto-Duodenal como Causa de Hemorragia Gastrointestinal Masiva

José R. González Giusti, José I. Iglesias, Teodoro Mayo, Departamento de Cirugía, Hospital Auxilio Mutuo, Hato Rey, Puerto Rico

La hemorragia gastrointestinal originada en el árbol biliar fue descrita por primera vez por Owen en el 1848. Cien años más tarde Sandblom le da el nombre de hemobilia. La hemobilia masiva no traumática, es una entidad relativamente rara y aún más si lo es causada por una fístula colecisto-duodenal como el caso que vamos a presentar. Paciente de 81 años de edad admitida al hospital con un cuadro sugestivo de colecistitis aguda, la cual comienza súbitamente con melena y luego hematemesis. Al no poder controlar la hemorragia, se efectúa una laparatomía exploratoria en la que se encuentra una fístula colecisto-duodenal con erosión de una rama de la arteria cística sangrando activamente dentro del duodeno. Se efectúa una colecistectomía, gastrostomía y yeyunostomía y después de un post-operatorio más o menos tormentoso mejora y es dada de alta persistiendo una fístula duodenobiliar. Corry, Mundth y Bartlett en la revista "Archives of Surgery" de octubre de 1968 publican los primeros dos casos de hemorragia gastrointestinal secundaria a una fístula colecisto-duodenal. El caso que será presentado y discutido es el tercero en la literatura médica.

(35)

Nuestra Experiencia con la Pentagastrina en el Examen de la Función Secretora del Estómago.

H. C. Mogena, A. Velloso Jiménez y J. M. Rodríguez Martin, Servicio de Aparato Digestivo, Fundación Jiménez Díaz, Avda. Reyes Católicos, 2, Madrid-3.

Este trabajo tiene como finalidad comparar los resultados obtenidos al estimular la secreción gastrica con histamina y pentagastrina. Para ello se han practicado en 18 enfermos pruebas de estimulación con ambas substancias por vía subcutánea, a las dosis de 6 microgramos/Kg. de peso para la pentagastrina y 0.023 mgrs./Kg. de peso para el clorhidrato de histamina. Las respuestas obtenidas con ambos estímulos han sido superponibles, tanto considerando aisladamente cada caso, como en su conjunto. Se ha comprobado también que la pentagastrina tiene una acción más precoz que la histamina sobre la secreción gástrica; no obstante se considera que la duración de la prueba no debe ser inferior a una hora. No se han producido efectos secundarios con el empleo de la substancia ensayada. La pentagastrina nos parece, pues, destinada a sustituir a la histamina como estímulo en las pruebas de secreción gástrica, por su total inocuidad, mayor sencillez de manejo y similitud de los resultados obtenidos con ambas, lo que permite aprovechar para la nueva substancia la ya amplia experiencia que se tiene con el uso de la histamina en la clínica.

(36)

Malignant Non-Epithelial Tumors of the Stomach

Steven C. Silverberg and Saul Kay, Medical College of Virginia, Richmond, U. S. A.

During the period 1951-1968, 26 malignant non-epithelial tumors of the stomach were seen in the Surgical Pathology Laboratory of the Medical College of Virginia Hospitals. These consisted of 16 malignant lymphomas, 9 leiomyosarcomas and one Kaposi's sarcoma. 313 gastric carcinomas were seen in the same period, the non-epithelial tumors thus constituting 7.7 percent of all gastric malignancies; this incidence is similar to those reported in the literature. 4 carcinoids and 4 leiomyoblastomas of the stomach were also seen during this period. The type of gastric lymphoma found most frequently in our series (11 of 16 cases), as well as in the literature, was reticulum cell sarcoma. The prognosis in cases of gastric lymphoma is poor, and these lesions should not be confused with the inflammatory masses known as pseudolymphomas, in which surgery is curative. Leiomyosarcoma is by far the most common soft-tissue sarcoma of the stomach, and is associated with a 5-year survival of approximately 50 percent; criteria for the differential diagnosis of this tumor from cellular or bizarre leiomyomas include nuclear pleomorphism, increased number of mitoses (especially atypical mitoses), and evidence of local invasiveness or metastasis. Kaposi's sarcoma is an uncommon tumor usually seen in the skin, but rarely associated with gastrointestinal dissemination. Examples of the clinical presentations and pathology of the lesions discussed will be demonstrated.

(37)

Estudio Estadístico Sobre Resultados en la Cirugía del Cáncer de Estómago

M. Hidalgo Huerta, Ciudad Sanitaria Provincial "Francisco Franco". Madrid.

Se revisan en este trabajo los diversos aspectos operatorios en el cáncer de estómago y supervivencias obtenidas tras la resección gástrica a 1, 5 y 10 años de distancia.

El material corresponde a 614 casos intervenidos personalmente entre los años 1,939 a 1,968 en el Hospital Provincial de Madrid, que representan el 8.73 porciento de la totalidad de afecciones gástricas sometidas a tratamiento quirúrgico. 62 porciento son varones y 38 porciento hembras. Las edades han oscilado entre 18 años (caso más joven) y 74 el de más edad, encontrándose los porcentajes máximos entre los 40-50 años (32.12 porciento) y 50-60 años (39.15 porciento). Los síntomas iniciales aparecen antes de un año en un 56.92 porciento de los casos, existiendo un 1.68 porciento en el que las manifestaciones clínicas son anteriores a los 3 años. 243 casos (39.5 porciento) presentaban lesiones tan extensas que no permitieron mas que la laparotomía y en 44 (7 porciento) tan sólo pudo practicarse gastroenteroctomía para salvar la obstrucción pilórica. El resto fueron tratados por gastrectomía subtotal, excepto 25 (4 porciento) en que fue total.

El antro y píloro constituyen el lugar electivo de incidencia (51 porciento), siguiéndole en orden de frecuencia la corvadura menor, cuerpo, fundus y, por último, corvadura mayor con sólo un 3 porciento.

Histopatológicamente es el adenocarcinoma (64 porciento) la forma habitual, y el porcentaje de los tipos de Broders se expresa en un 40.74 porciento el grado

IV, un 33.33 el grado III, un 22.22 el grado II y un 3.71 porciento el grado I.

No obstante los grados de diferenciación tan acusados de nuestra experiencia el índice de supervivencias a distancia es moderadamente alentador ya que al cabo de 1 año representa un 23.5 porciento, al cabo de 5 años es un 12 porciento y al cabo 10 años alcanza una 9.8 porciento, según nos ha demostrado la encuesta realizada.

III. MICROBIOLOGIA Y PARASITOLOGIA
III. MICROBIOLOGY AND PARASITOLOGY

(38)

Gastrointestinal Moniliasis in Patients with Neoplastic Disease.

P. Eras, M. J. Goldstein, P. Sherlock. Memorial Hospital for Cancer and Allied Diseases, New York, New York

Autopsy protocols at Memorial Hospital for the years 1960-1964 inclusive were reviewed for evidence of histologically-proven fungal involvement of the gastrointestinal tract. There were found 106 cases of Candida albicans in the gastrointestinal tract. Of these, 72 patients had either leukemia or lymphoma and the remainder had a variety of other malignant neoplasms. Approximately 10 percent of all patients with Hodgkin's disease, reticulum cell sarcoma and the leukemias and 24 percent of patients with lymphosarcoma had monilial involvement of the gastrointestinal tract. The lower esophagus was most frequently and most extensively involved. Esophagitis, with or without membrane formation, was the most common lesion. Gastric and duodenal ulceration with monilia in the ulcer base was not uncommon, as were larger patches of eroded mucosa of the small bowel and colon. The rectum was rarely involved. Upper gastrointestinal bleeding was a common presenting symptom of moniliasis. Occasionally gastric or duodenal perforation with monilial infection was seen. Dysphagia and odynophagia were frequent presenting complaints in patients with severe monilial esophagitis. Approximately one-half of patients with significant esophageal lesions had no symptoms related to the esophagus. Only non-specific complaints were noted in fungal involvement of the stomach, small bowel or colon. The white blood cell count was usually below 1000/cubic millimeter; globulins were low and sepsis was present in 45 percent. All patients with lymphoma had been treated with a variety of chemotherapeutic agents, steroids and/or radiotherapy. It was therefore not possible to relate the occurrence of fungal infection with any specific type of therapy. Fungal infection of the gastrointestinal tract in patients with neoplastic disease, particularly lymphoma, occurs more frequently than has been generally recognized.

(39)

Schistosoma Mansoni Infection in Liberia: Epidemiology.

William A. Sodeman, Jr., The Liberian Institute of the American Foundation for Tropical Medicine, Harbel. Liberia.

This study summarizes some aspects of the epidemiology of infection with *S. mansoni* in the West African environment with particular emphasis on effects of geography and climate on parasite-vector relationship. Serial changes in snail populations and infections were followed for 13 months at 63 sites in a ten mile long zone. Human infection in the study area was estimated by examination of primary school children. Results may be summarized as follows: The environment in Liberia is one of marked seasonal contrasts, with distinct dry and wet periods. There is seasonal periodicity in the vector snail population which contracts during the wet period. Seasonal fluctuations in snail infections also occur, but there are twice yearly peaks, each representing the accumulation of infections in the stabilized wet and dry time populations. If snail sites are considered individually rather than data pooled for the whole collection area it is clear that isolated ecologic factors may be more important determinants of snail-parasite behavior and may in selected circumstances override seasonal influences. The most important conclusion suggested is that even when seasonal environmental changes are extreme, planning of the application of snail control measures must be individualized rather than based only on environmental data. Additionally there is no support for the local dictum that the rainy season is a safe water period.

(40)

El Problema del Parasitismo Intestinal en Puerto Rico.

José F. Maldonado, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan

Con el fin de ilustrar a los asistentes al Congreso

sobre la gravedad que puede llegar a adquirir el parasitismo intestinal en la región tropical, a pesar de los adelantos que están ocurriendo en derredor, se ha llevado a cabo una encuesta parasitaria por examen de heces fecales entre escolares de una región a corta distancia de San Juan.

Se caracteriza esta región por el clima cálido, agricultura a base de palma de coco y frutas, terreno arenoso y población con una predominancia negra. No es por tanto representativa de Puerto Rico, pero por lo menos es parte del núcleo social que predomina en la isla.

Los datos a presentar correlacionarán las infecciones intensas a *Ascaris* y *Trichuris*, con el nivel educativo y el hacinamiento, para demostrar la revelancia de estos factores en la ocurrencia de un problema gastroenterológico, y por ende de salud en general, de gran magnitud.

(41)

Filtration of Schistosomes via Umbilical Vein Catheterization

R. R. E. Kessler, J. H. Amadeo, and D. S. Zimmon. San Patricio Veterans Administration Hospital, San Juan, Puerto Rico

Recent reports have demonstrated that adult schistosomes can be filtered from portal venous blood by creating an extracorporeal porto-systemic shunt at the time of splenectomy. The present study was undertaken to determine if this could be accomplished under local anesthesia without opening the peritoneum by catheterization of the umbilical vein remnant. Seven patients with a positive circumoval precipitin test underwent filtration of their portal blood through an extracorporeal umbilical-saphenous shunt. The shunts were created by inserting an 18 French polyethelene catheter through the umbilical vein remnant into the left portal vein and a similar catheter through the saphenous vein. The catheters were connected by silicone tubing with a blood filter, external roller pump and electromagnetic flow meter incorporated into the extracorporeal circuit. The patients were heparinized, given tartar emetic (2 mg. per Kg.) and their portal blood pumped and filtered for 60-90 minutes. Three patients underwent a second filtration 1-2 days later. The mean flow rate through the shunts varied from 530-1450 ml per minute. The number of schistosomes recovered in each patient varied from one to 305. The number of worms recovered correlated with the prefiltration quantitative stool oograms. A significant number of worms were removed between 60 and 90 minutes after administration of the drug. Six percent of the total worm count was recovered during a second filtration in the patient in whom 305 worms were removed. There was a 95-100 percent reduction in stool egg count two weeks after filtration. This study demonstrates that filtration of schistosomes from the portal venous blood via an extracorporeal umbilicosaphenous shunt is a safe, simple, non-toxic, and effective method for removing splanchnic blood flukes. The filtration period should be 90 minutes and repeated 1-2 days later in patients with a heavy infectation.

(42)

Microbiología y Parasitología Intestinal. Sus Relaciones con la Antibioterapia

J. Mg. Esteban y Marquez de Prado; Jefe Servicio Medicina Aparato Digestivo Seguridad Social; J. Mg. Esteban y Bernaldez, Médico Jefe Becarios Clínica Patología Médica Facultad Medicina Madrid Profesor Díaz Rubio. (España).

1. Tanto la sintomatología que produce la invasión de un parásito como la que produce la invasión de un gérmen tiene un período de agudización que depende de la relación de las mutantes immunológicas y de las reacciones que ellas ya hayan sufrido en otros momentos de su vida.

2. Después de vencer estas reacciones y de nivelarse de nuevo el equilibrio quedan tanto los parasitados como los infectados en un estado de curación o en un estado de latencia de enfermedad y podemos considerarlos como "portadores sanos".

3. Las dietas unilaterales y sobre todo las hidrocarbonadas alteran francamente este equilibrio y favorecen según la existencia de flora gram positiva o gram negativa el anidamiento de uno u otro parásito y se acusan más o menos las reacciones sintomáticas que estos provocan.

4. Dependiendo de estas reacciones el parásito puede sufrir una reacción interna por alteración del aporte de glucógeno en la dieta y llegar al estado de "fimbriarización" si es gusano.

5. Asi como el colibacilo colabora en la vida del gusano, este puede excitar la virulencia del protozoo y su ausencia puede favorecer el estado de "blastocistización".

6. La disbacteriosis que la antibioterapia produce en el medio ambiente del intestino es necesario tenerla muy en cuenta pues puede llegar permitiendo el anidamiento de formas resistentes y agresivas a provocar

fenómenos septicémicos importantes por que se ha alterado anteriormente con motivo de la falta de biocatalizadores y biosintetizadores la permeabilidad de la mucosa.

(43)

Tratamiento de la Amibiasis Intestinal con Eticlordifene

E. Barroso y J. Ruilaba. Instituto Nacional de la Nutrición, México, D. F.

El Eticlordifene producto sintético se administró a 66 enfermos de rectosigmoiditis amibiana y a 36 personas que tenían quistes de amiba histolítica en las heces.

En el adulto se dieron diariamente 4 comprimidos de 150 mgs. de Eticlordifene cada uno, por 5 días. En los niños de 1 a 13 años se proporcionaron cantidades relativamente mayores.

El 92 porciento de los 24 niños la rectosigmoiditis amibiana curó ya que desaparecieron los trofozoitos-de amiba histolítica así como las ulceraciones y las manifestaciones clínicas. La cifra correspondiente en 42 adultos fue de 71 porciento; en conjunto en estos 66 enfermos se obtuvo curación en el 70 porciento. Para aumentar el índice de buenos resultados en el adulto, se sugiere incrementar la dosis diaria o la duración del tratamiento.

De 36 adultos con amibiasis intestinal no disentérica, la mayor parte no tuvieron síntomas referentes y en 32 dejaron de hallarse los quistes de amiba histolítica en varios exámenes fecales repetidos después del tratamiento. Se insiste en que la evaluación terapéutica de un anti-amibiano en las formas intestinales, se haga sólo en los pacientes con ulceraciones rectosigmoideas de esa etilogía.

El Eticlordifene fue en general bien tolerado.

(44)

Tratamiento de la Bilharziosis con una Sola Dosis de Hycanthone

M. Ron Pedrique y M. Sinz J., Servicio Antibilharziano de Caracas, Ministerio de Sanidad y Asistencia Social, Venezuela

El Hycanthone es un derivado hidrozimetilado de la Thioxaten-9-ona denominado Miracyl D o Lucanthone.

Ciento cuarenta pacientes con bilharziosis crónica del tipo hepato-intestinal fueron seleccionados por tener positivos todos los exámenes coprológicos practicados sucesivamente en número de tres con método de concentración y además por no tener otra enfermedad. Fueron divididos en dos grupos. El primero de 31 sujetos para controlar además de la efectividad, las intolerancias y toxicidad de la droga. A estos pacientes se les practicaron recuentos de leucocitos, hematíes, plaquetas, hemograma, urea, glicemia, bilirrubina, hanger, tymol, transaminasas, fosfatasa alcalina, orinas, electrocardiogramas antes y después del tratamiento. Al grupo restante de 109 sujetos solo se le practicó el control rutinario dispensarial y sirvió como control complementario de efectividad. Todos tuvieron control coprológico con tres exámenes sucesivos con método de concentración practicado cada mes en el 1ro., 2do., 3er y 6to mes. Los pacientes negativos el 3er mes se le practicó biopsia rectal con tomas múltiples. Se usó el metano sulfamato de Hycanthone disuelto en agua destilada e inyectado con una sola dosis en la región glutea a razón de 2.5 mgm./kg. en unas y de 3 mgm./kg. en otros.

Resultado: 55 porciento de los pacientes no mostraron intolerancias y de las que ocurrieron ninguna fue severa consistiendo principalmente en dolor local, náuseas o vómitos. Solo mostraron alteraciones del hemograma por eosinofilia el 10 porciento. Elevación moderada de ambas transaminasas se observaron en el 25 porciento y alteraciones del electrocardiograma por aplanamiento de T y desplazamiento de ST en el 20 porciento fue negativo el control por biopsia rectal.

Conclusiones: Las características del Hycanthone lo hace en el presente la droga de elección para el tratamiento de la bilharziosis y por sus condiciones de fácil aplicación, alta efectividad, buena tolerancia y no peligrosidad es un medicamento para tratamientos masivos que abre una perspectiva promisora en la lucha para la erradicación de la enfermedad.

(45)

Estudios Experimentales y Clínicos con un Nuevo Antimonial (N.A.P.) para el Tratamiento de la Bilharziosis

M. Ron Pedrique y Nicolo Ercoly. Servicio Antibilharziano, Ministerio S.A.S. - Venezuela.

Introducción: El N.A.P. es un quelato del Antimonil tartrato de sodio obtenido al combinar este antimonial la dimetilcisteina. Las investigaciones clínicas se dividen en cuatro etapas: 1) Estudio clínico del TP2, 1,964; 2) Estudio clínico del NAP, 1,965 y 66; 3) Estandarización y uso clínico del NAP 1,967; 4) Empleo del NAP en poblaciones rurales para es-

tablecer sus posibilidades en la "Terapia de Masa".

Material y Método: Las drogas se aplicaron en forma de una inyección glutea (i. m.) diaria por 5 días sucesivos. Se seleccionaron los pacientes positivos en todos los exámenes practicados por 3 veces sucesivos con métodos de concentración. Se controlaron los pacientes cada mes, durante el 1ro., 2do., 3er. y 6to mes. Se observaron los pacientes clínicamente por laboratorio y electrocardiograma para apreciar los efectos tóxicos y de intolerancias. Los resultados obtenidos fueron: El TP2 (D.M.C. quelato del tártaro emético) en dosis total de 180 a 220 mg de antimonio por paciente dió una negativización coprológica en 24 de 52 pacientes tratados, con excelente tolerancia clínica por lab. y electrocardiograma. Se concluyó en la necesidad de mejorar su efectividad aumentando la concentración de antimonio y la solubilidad por el uso del NAP; 2) Para el estudio clínico inicial del NAP seleccionamos 286 pacientes divididos en 3 grupos administrando dosis totales de NAP equivalente a 275, 298 y 336 mg de SD. Se demostró una relación directa entre las dosis administradas, la efectividad y las intolerancias. Se seleccionó la dosis de 298 mg de SD, por. 71 porciento de buena tolerancia y 88.5 porciento de negatividad coprológica; 3) El NAP se normalizó en dosis diarias de 400 mg. disueltos en 5 cc. de agua destilada aplicación glutea (i.m.) por 5 días sucesivos para una dosis total de 290 mg. SD. Con este método se trataron 246 pacientes, con 82 porciento de negativización coprológica; 4) Para el ensayo en medio rural se seleccionó 108 campesinos utilizándose el método standard de tratamiento y control manteniendo sus labores habituales. Completaron el tratamiento 101 (97 porciento) con tolerancias excelentes 31, buena 30, regular 35, mala 9. Noventicuatro porciento se negativisaron coprológicamente.

Conclusiones: El NAP en el tratamiento de la bilharziosis muestra alta efectividad que unida a una tolerancia aceptable lo califica en nuestra experiencia como el mejor de los antimoniales con posibilidades de ser usado en el tratamiento de masa.

(46)

Anaerobic Intestinal Bacteria of Clinical Importance

Robert J. Alpern and V. R. Dowell, Jr., U. S. Department of Health, Education and Welfare, Public Health Service, Health Services and Mental Health Administration, National Communicable Disease Center, Atlanta, Georgia, 30333.

The majority of anaerobic bacteria associated with human infections are part of the normal microbiota of the bowel. When proper anaerobic culture methods are employed, these bacteria can be isolated from persons with a variety of acute and chronic infections, including septicemias, deep abscesses, traumatic and post-operative wound infections, meningitis, osteomyelitis, and subacute bacterial endocarditis. The anaerobic bacteria involved are clostridia, non-sporulating gram-negative bacilli, and cocci. The NCDC Anaerobic Bacteriology Laboratory is now actively analyzing the clinical data associated with more than 6,000 cultures of anaerobic organisms isolated from human specimens during the past 7 years. This study has revealed that the most commonly isolated anaerobic bacteria are *Bacteroides* and other non-sporulating gram-negative bacilli, such as *Fusobacterium.* These organisms are quite prominent in polymicrobic surgical infections but have frequently been recovered in pure culture from blood and deep abscesses. This study has also demonstrated the prominent role of altered bowel-wall integrity in the pathogenesis of many infections due to anaerobic microorganisms. This role is well exemplified by our data on clostridial septicemias. In a review of 101 cases of septicemia due to 11 different species of clostridia, we found the following associated factors: non-malignant intra-abdominal disease (37 patients), malignancy (22), neonatal sepsis (12), brain lesion (9), congestive heart failure or pneumonia (9), and fractured femur or femoral thrombophlebitis (7). We urge that anaerobic as well as aerobic techniques be used in the diagnostic bacteriology laboratory in examining blood, abscess fluid, and intra-abdominal tissue specimens, especially from patients with malignancies or intestinal lesions.

(47)

The Homeostatic Control of Intestinal Bacteria by Bile Salts.

Martin H. Floch and Howard M. Spiro, Yale University School of Medicine, 333 Cedar Street, New Haven, Connecticut 06510.

Observations on the effect of bile salts on bacterial growth lend support to the theory that bile salts can play an important role in stabilizing bacterial populations in the human intestine. Some bile salts, desoxycholic acid, have been shown to inhibit several species of bacteria. This study evaluated the effect of

conjugated and deconjugated bile salts in physiologic concentrations found in the intestine on the common organisms encountered in the human intestine. A test system was set up consisting of a series of tubes containing adequate medium to support the growth of the organism under study along with varying concentrations of cholic, taurocholic, or glycocholic acid in tris buffer. Several strains of *Lactobacillus acidophilus*, *Lactobacillus bifidus*, *Streptococus faecalis*, beta-hemolytic *Streptococus*, *Escherichia coli*, and *Klebsiella aerogenes* were freshly isolated from human feces and studied. Inhibition of *L. acidophilus*, *L. bifidus*, and *S. faecalis* were observed at concentrations of 1 to 10 mg of cholic acid/ml. Taurocholic acid and glycocholic acid produced no inhibition of growth in similar physiologic concentrations. Results were most reproducible with *Lactobacilli* and varied with freshness of isolation of the organism. From these studies it appears that deconjugated bile salts such as cholic acid and desoxycholic acid, may regulate bacterial growth. In this way bacteria themselves by deconjugation of bile salts may be able to control their own numbers.

(48)

Coproantibodies: Are They Always of Local Origin?

Sumner C. Kraft, Jack L. McCleery and Richard M. Rothberg, Departments of Medicine and Pediatrics, University of Chicago, Chicago, Illinois, U. S. A.

There is much current interest in the immunology of external secretions and coproantibodies are known to be formed by gastrointestinal lymphoid tissue in response to ingested and other local antigens. Since serum antibodies also may appear after this "oral immunization, "when studying secretory immunoglobulins it is important to know if antibodies may pass from the blood stream into enteric fluids. For example, one investigator was unable to demonstrate anti-ovalbumin in the feces of animals with appreciable amounts of this antibody in the serum. The present experiments were designed to determine if serum antibody to bovine serum albumin (BSA), another soluble dietary antigen, could be detected in the feces of actively and passively immunized rabbits. Circulating and fecal anti-BSA were measured by precipitating ^{131}I-labeled BSA-antibody complexes with 50 percent ammonium sulfate. Nine of thirteen animals actively immunized with parenteral BSA excreted fecal anti-BSA. Each of four rabbits passively immunized with intravenous hyperimmune rabbit anti-BSA also had this antibody in the stool for up to six days after the injection. There was no direct correlation between the amount of serum anti-BSA and detection of the antibody in the feces. Because of degradative factors such as proteolytic enzymes and the effects of bacteria, the amount of anti-BSA measured in the feces may have represented only a small portion of that actually entering the alimentary canal from the circulation. There is a strong possibility that passively transudated antibody may be less efficient than locally formed antibody in functioning at mucous surfaces. In view of the present data, one must question the biological significance of some antibodies detected in the intestinal lumen. Furthermore, we also have demonstrated anti-BSA concurrently in the serum and gastroduodenal contents of healthy human subjects who have no symptoms after ingesting BSA-containing foods. Some workers have speculated that intestinal antibodies to dietary antigens may be factors in the pathogenesis of certain disease states. How frequently antibodies present in alimentary contents may be of such importance is uncertain, however, since great care must be taken to distinguish between locally produced coproantibodies and antibodies derived from serum.

IV. ESOFAGO
IV. ESOPHAGUS

(49)

Natural History of Uncomplicated Hiatus Hernia

Flood, C. A.

The natural history of uncomplicated symptomatic hiatus hernia was observed in a group of 86 patients over an average period of 9.5 years. The patients were initially treated conservatorily with a bland diet and antacids and were then seen periodically during follow-up at yearly intervals or more frequently when necessary. The initial symptoms consisted primarily of epigastric or substernal distress. The symptoms were well controlled in the majority of patients by treatment. However, most individuals continued to have a mild problem at times and only a few became and remained asymptomatic during the course of the study.

Eight patients (9 percent) experienced gross hemorrhage during follow-up. The hemorrhage was associated with a newly demonstrable gastroduodenal ulcer in 2 patients. It was thought to be indirectly related to the hiatus hernia in the other 6 individuals. The bleeding subsided in all instances under conservative management.

Eight patients (9 percent) developed dysphagia during follow-up observation. Only 1 individual developed an esophageal stricture that required bougienage. Three patients developed mechanical obstruction of the herniated stomach, manifested by episodes of pain, dysphagia and regurgitation. The dysphagia was mild and intermittent in the remaining 5 individuals and was attributed to disruption of esophageal peristalsis.

Surgical treatment was eventually undertaken in 12 patients (14 percent). The indication for surgery was incapacitating distress despite medical treatment in 9 patients. The 3 individuals with intermittent mechanical obstruction of the hernial pouch also required surgery.

(50)

Hiatal Hernia: Incidence vs. Significance

Gordon McHardy, MD, Browne-McHardy Clinic, 3636 Saint Charles Avenue, New Orleans, La., 70115

Since hiatal hernia is the abnormality encountered most frequently on roentgenography of the upper gastrointestinal tract, its incidence must be qualified: is it merely a coincidental finding or is it a significant disease entity?

Accurate diagnosis of hiatal hernia, and of its symptomatic component, esophagitis, has been enhanced by precise endoscopic visualization, photography and biopsy, by fluorocinematography and by manometric determination of motor abnormality, coupled with symptomatic manifestations reproducible with acid perfusion. Combined study has led to more complete knowledge of the function of the normal and diseased esophagus, and has removed the esophagus from the status of a tube for passage to a responsive organ with a specific motor pattern that reacts to stimulation and is subject to inflammatory change.

Symptomatic hiatal hernia and coronary artery disease occur predominantly in the same age group; concomitancy is not unusual. The manifestation of oppresive pain in the retrosternal area, with radiation over the anterior chest and into the neck, shoulders and arm, can be identical in the two disease states. Relationship of pain to eating, to recumbency and to strain, plus relief of pain with sublingual nitroglycerin, further confuses the differential evaluation. Precipitation of pain by regurgitation, nocturnal occurrence and relief by antacids only inconclusivcly favor esophagitis of hiatal hernia. Cough, tracheobronchitis and dyspnea, complaints prominent in regurgitant esophagitis, are notably present in cardiovascular disease. Erroneous diagnosis in either direction carries therapeutic and prognostic implications of importance. In the differential diagnosis, because hiatal hernia should not be a diagnostic catchall, in addition to coronary artery disease, one must consider, among other entities, biliary tract disease, mediastinal factor, musculoskeletal disease, peptic ulcer disease elsewhere, and neoplasia.

Therapeutic efforts are identical to those of peptic ulcer disease, supplemented by the physical measures of elevation of the head of the bed, and avoidance of recumbency, physical strain, and obesity. There are the same frustrations to management with antacids, anticholinergics and sedatives as in ulcer disease, with a high incidence of recurrence, intractability and the complications of penetration, bleeding and obstruction. Surgical indications, identical to those of peptic ulcer disease, include failure of medication, and are subject, as the surgical management of ulcer disease, to annual revision as statistics of failure accumulate. Apparently the surgical procedure incorporates reconstruction of the diaphragmatic hiatus, replacement of the stomach into the abdomen, recreation of the oblique esophagogastric junction, plication of the stomach within the abdominal cavity around the abdominal esophagus, an antisecretory operation, and a drainage procedure.

Hiatal hernia obviously is a diagnostic and therapeutic challenge of a magnitude that measures up to the incidence of this disease state.

(51)

Computerized Analysis of Esophageal Motility and Transmural Potential Difference (PD) Tracings

I. T. Beck, J. E. Fox, J. Szivek. Departments of Medicine and Physiology, Queen's University, Kingston, Ontario, Canada.

Observer variation in the clinical interpretation of esophageal motility and PD tracings is a frequent occurrence. In order to minimize human error we developed a computerized method of interpretation. After standardizing our techniques of recording motility and PD (Hernández & Beck; American Journal of Digestive Diseases; 1969) we set down criteria of converting tracings to digital data to be analyzed by a 360/50 I.B.M. computer. In addition, for visual reference, the data were replotted in a composite line graph using a PDP-9 and a Calcomp plotter. Pertinent points of the profile of the tracings were identified as to their location, their pressure or their voltage (PD) and stored on magnetic tape for future retrieval. In a four lead tracing (3 for motility and 1 for PD) there are approximately 120 data points. These are i.e.: the beginnings, peaks, plateaus and ends of the high pressure zones, the respiratory reversal point and the beginning, slope and end of the PD transition zone. A standard of reference of these profiles is being compiled of normal individuals with no history of G-I complaints and who have normal X-rays. Stored data of controls and patients are grouped and analyzed according to age, sex, diagnosis and results of other investigations. Results: Multiple parameters of the esophageal motility and PD tracings were analyzed. For example, amongst others it was found that in the 13 normal individuals studied up to now, the PD transition zone does not exceed 5 cms whereas in 14 patients with hiatus hernia the PD transition zone has a range of 2 to 11 cms. Similar comparative data for all points of the profiles are available. Diagnostic criteria are being established on statistical differences of profile points between normals and patients. This method of analysis should improve the diagnostic value of esophageal motility tracings.

(52)

La Citología Esofágica por el Método de De-Bray

Jaime Campos y Armando Santamaría. Hospital San Juan de Dios, Facultad de Medicina de la Universidad Nacional, Bogotá, Colombia.

Se presentan los resultados de citología esofágica obtenidos por aspiración-raspado sin endoscopia (cytorape de Ch. Debray). El equipo consta de una sonda de aspiración gástrica (Camus) con un cilindro metálico, hueco y perforado, que reemplaza la oliva original y de una jeringa de 50 ml. para aspiración. Con el paciente en ayunas y bajo fluoroscopia se coloca el extremo de la sonda en el sitio seleccionado previamente por radiografía y enseguida se efectúa la aspiración ejecutando simultáneamente pequeños movimientos de tracción. La sonda es retirada y con el material adherido al cilindro se practican los extendidos. En esta forma se examinaron 74 pacientes.

Resultados: La citología fue positiva para células tumorales en 52 (89.6 porciento) de 58 pacientes con carcinoma del esófago y del cardias, dudosa en 3 y falsa negativa en 3 (5.2 porciento). En 14 pacientes con esofagitis la citología fue siempre negativa y contribuyó al diagnóstico de hernia hiatal en algunos casos, mediante el hallazgo de células gástricas en los extendidos. En 2 individuos normales la citología fue negativa.

Conclusiones: Este método es un procedimiento diagnóstico complementario sencillo y útil en lesiones cardioesofágicas. En nuestro estudio permitió el diagnóstico correcto en 68 de 74 pacientes estudiados

(92 porciento). La rapidez y electividad de la toma de la muestra facilitan el trabajo tanto al clínico como al citopatólogo.

(53)

Acalasia y Cáncer del Esófago

Jorge O. Just Viera, MD y Cameron Haight, MD. Secciones de Cirugía Torácica, Escuela de Medicina de la Universidad de Michigan y del Hospital Municipal de San Juan, Puerto Rico.

La asociación de cáncer del esófago con cualquier condición que pueda tratarse y corregirse es de gran importancia. Existe una relación entre acalasia de larga duración y el desarrollo de cáncer del esófago.

Desde la descripción original de cáncer coexistente con acalasia del esófago por C. H. Fagge en 1872, se han informado 167 casos en la literatura médica de Europa y América, los cuales se revisaron.

Cáncer del esófago complica el curso de acalasia en aproximadamente 3 a 7 porciento de los pacientes con acalasia. La edad promedio de estos pacientes al aparecer la malignidad es de 48 años. El cáncer casi siempre es de tipo epitelioma, afecta el tercio medio del esófago con más frecuencia, y ocurre más a menudo en hombres que en mujeres. El síntoma más común es pérdida de peso, seguido por empeoramiento en disfagia. Puede llegarse a un diagnóstico positivo a través de esofagoscopía, esofagograma y examen citológico de las secreciones esofágicas.

Se discutirán los aspectos más importantes de la coexistencia de ambas enfermedades, según hemos apreciado después de revisar los casos en la literatura y tratar 5 pacientes con acalasia y cáncer del esófago. Se describirá el tratamiento más aconsejable para prevenir el desarrollo de cáncer en acalasia y también el tratamiento de cáncer del esófago cuando complica la acalasia.

(54)

The Significance of the Normal Diaphragmatic-Esophageal Relationship in the Lower Esophageal Sphincter Mechanism

Alonso, B., Armstrong, R., Vlahcevic, Z. R., Zimberg, Y. and Zfass, A. M., Medical College of Virginia and McGuire V. A. Hospital, Richmond, Virginia, U. S. A.

The effect of the diaphragm on the lower esophageal sphincter mechanism was studied in 11 patients undergoing peptic ulcer surgery. It has been routine for surgeons at the McGuire Veterans Administration Hospital to create a longer intraabdominal portion of the esophagus at the time of peptic ulcer surgery, in order to obviate resultant esophageal reflux. The opportunity was, therefore, provided to study the LES mechanism prior to and after surgery. Esophageal manometric observations were obtained with an assembly of polyvinyl catheters with distal side openings, 5 cm apart, perfused with 0.573 ml of water per minute. The distance of the sphincter from the nares, length of the sphincter, point of respiratory reversal (PRR), resting pressure and response to deglutition were recorded before and approximately 2 months after surgery. At surgery, in addition to definitive peptic ulcer surgery, the esophagus was displaced 5-10 cm below the diaphragm; and the phreno-esophageal ligament was plicated under the left diaphragm. In all cases, radiopaque markers were attached to the hiatal orifice and at the site of plication. In 3 patients, additional markers were placed on the esophagus at the level of the hiatus. Combined cine-manometric studies in the follow-up study allowed manometric-anatomic correlations of the new esophageal-diaphragmatic relationship and further allowed assessment as to the success of these attachments. In all 11 patients, measurements of the LES position, length, PRR and relaxation with swallow were unaltered after surgery. Cine studies confirmed the intra-abdominal position of the esophagus, without any measureable change in manometric function. These observations indicate that (1) displacement of the LES below the diaphragm produced no change in sphincter mechanism and that (2) the diaphragm and phreno-esophageal ligament attachment do not contribute to the manometric lower esophageal high pressure zone and PRR.

(55)

Cáncer del Esófago

Dres. Alvaro Badell Urdaneta, Alirio Villasmil Morillo y Amo Prieto Núñez. Departamento de Gastroenterología Hospital Universitario de Maracaibo-Venezuela.

A cada enfermo visto por nosotros lo hemos estudiado de acuerdo a los siguientes criterios: historia clínica, examen físico completo, exámenes de laboratorio, exploración funcional del estómago, estudio radiológico, endoscópico, citología y biopsia.

Para realizar este trabajo hemos revisado el material clasificado de carcinoma de esófago encontrando los siguientes resultados: del tercio superior 10 casos, tercio medio 26 y tercio inferior 24, arrojando un total de 60 casos.

Observamos que la mayor localización se encontró en el tercio medio. Como tratamiento se usó la cobaltoterapia y la cirugía con resultados halagadores.

(56)

Ingestión de Acido Sulfúrico

Alberto Albornoz-Plata, MD, FAGA, FACP., Departamento de Gastroenterología, ICSS, Bogotá, Colombia.

Se discute lo relativo a la ingestión del ácido sulfúrico, que generalmente es con fines suicidas y rara vez es atribuíble a equivocación. La acción del ácido sulfúrico se manifiesta en cavidad oral, esófago y estómago esencialmente y secundariamente, por mecanismos de aspiración o inhalación, hay compromiso respiratorio grave. Se estudia lo relativo a los cuidados inmediatos a la ingestión del corrosivo cáustico, su tratamiento subsiguiente y las probabilidades de reparación quirúrgica posterior. La acción del ácido en el aparato digestivo se traduce por su poder de corrosión y de penetración, acción que dura hasta *un mes* después del accidente. El pronóstico es grave durante el primer mes pues es imposible controlar la acción del ácido a nivel tisular. Los peligros inmediatos son la perforación de esófago y/o estómago con la subsiguiente mediastinitis o peritonitis. La dosis letal es de 1 ml. Se presenta un caso, un intento de suicidio por ingestión de 30 ml. de ácido sulfúrico concentrado que sobrevivió 22 días; a las pocas horas de ingerido el cáustico, lejos de un centro hospitalario especializado, se intentó lavado gástrico con agua pura; fue trasladado a Bogotá en estado de colapso cardio-respiratorio. Desarrolló un cuadro muy severo de neumonitis que mejoró con oxígeno, cortisona, nebulizaciones; se instaló una disfagia que progresó a afagia; hubo necesidad de verificar una gastrostomía; existía una perforación gástrica sellada; hubo alguna mejoría en los primeros días pero en el curso del mes de expectativa hizo melenas, hematemesis, hemoptisis que obligaron a traqueostomía de emergencia; se presentó un estado de shock irreversible y murió a los 22 días. Se estudian las complicaciones y tratamiento propuesto en esas circunstancias.

V. INTESTINO DELGADO
V. SMALL INTESTINE

(57)

The Detection of Human Coccidiosis by Small Bowel Mucosal Biopsy

Brandborg, Lloyd L. and Stanley B. Goldberg. Veterans Administration Hospital, San Francisco, Calif.

Human coccidiosis is considered to be a rare parasitic infection, particularly in temperate climates. Endemic areas exist in some countries in South America, the eastern Mediterranean, in South East Asia and in Africa. Little information is available regarding the pathology of the intestine in patients harboring Coccidia. We have had the opportunity to study small bowel mucosal biopsies in four patients infected with this protozoan parasite. One patient apparently acquired his infection in Syria, one in Puerto Rico, and two had not left the United States; all had steatorrhea and diarrhea. Several stages of the organism were identified within the mucosa including schizonts, gametes, and merozoites. The morphology of the organism closely resembles other Coccidia occurring in animals. In only one of our four patients was the diagnosis made on the basis of examination of feces. The mucosal pathology varied. The least severely ill patient had only mild non-specific changes. Two patients had a flat mucosa. One patient had clubbed villi and extensive collagen deposits in the lamina propria. Two of the patients, a 42-year old woman and a 12-month old boy died as a result of the infection. One patient died of a pulmonary embolus before any treatment could be instituted. The surviving patient recovered coincidentally during treatment with guinacrine for a co-existent infection with Giardia lamblia. Following treatment, Isospora belli oocysts could no longer be demonstrated by zinc sulfate concentration methods.

(58)

A Kaleidoscopic View of Non-Tropical Sprue (Adult Celiac Disease): Report of 80 Cases.

Roberto F. Gluckmann and William S. Haubrich, The Henry Ford Hospital, Detroit

Eighty cases of non-tropical sprue (adult celiac disease) have been diagnosed, treated, and followed at The Henry Ford Hospital during the past decade. A striding variety of presenting syndromes have been encountered in this large series. The ratio of males to females is 2 : 3, and the peak frequency is in the fifth and sixth decades of life. Seldom was there a history of infantile celiac disease, and no familial predilection was noted. Impressive was the frequency of characteristic radiographic distortion of the duodenum, occasionally despite a normal mucosal pattern in the jejunum. Heretofore unremarked features have been impairment in the absorption of cholecystographic media and of antibiotic agents. The *sine qua non* of diagnosis is the peroral mucosal biopsy of the proximal small bowel which was almost invariably pathognomonic in this series. Gratifying clinical response to a strict, low-gluten diet was achieved in all cases but one. Subsequent wide variation in sensitivity to gluten has been found, but all patients have required continued diet therapy. Metabolic and histologic abnormalities have returned toward normal but have not completely resolved. Four patients (5 percent) have succumbed to visceral lymphomas.

(59)

Tratamiento Quirúrgico del Divertículo del Duodeno

Dres. Armando Ordoñez Acuña y Francisco Fonseca García, Facultad de Medicina de la Universidad Nacional de México.

Los autores hacen un análisis histórico de su hallazgo en el hombre, de su descripción anatómica así como de un cuadro clínico y localización radiológica que podría dar lugar a considerarlo como una entidad nosológica y por último, un comentario de los diferentes procedimientos quirúrgicos que han sido empleados para su tratamiento y la exposición de una táctica operatoria que han venido practicando los autores del trabajo.

(60)

Síndrome de Intolerancia a la Lactosa

P. R. García Siguero, D. Caón, M. Chekherdemian, M. Rapaport, F. Vivane, A. de Cucco, República de Argentina.

Los valores de lactasa yeyunal fueron correlacionados con una historia de intolerancia a la lactosa, con la sintomatología clínica, el pH y ácido láctico fecal y la prueba de tolerancia a la lactosa en 36 sujetos controles y 95 con deficiencia de lactasa, 26 de ellos con giardias lamblias. Los resultados indican que un sindrome de intolerancia a la lactosa debe ser diagnosticado en base a los siguientes parametros en orden decreciente:

1. Ausentes o bajos niveles de lactasa a nivel del ligamento de Treitz (0.8 u).
2. Existencia de una sintomatología clínica, incluso diarreas, después de una sobrecarga de lactosa (98.8 porciento).
3. Valores anormales de ácido láctico y pH fecal después de una sobrecarga de lactosa (94.1 porciento).
4. Una anormal relación Sucrasa-Lactasa (22:1) y Maltasa-Lactasa (72:1) comparada a la relación hallada en los controles (4:1) y (10:1) respectivamente.
5. Una prueba de tolerancia a la lactosa plana (83.5 porciento).
6. Historia de intolerancia a la lactosa (80 porciento).

No existe paralelismo entre los valores de lactasa intestinal y la histología del yeyuno. La ultramicroscopía no reveló cambios estructurales en los pacientes con carencia de lactasa e histología normal.

La histoquímica por el método de Dahlqvist y Blum fue positiva solo en el 28 porciento de los controles.

(61)

El Tratamiento de Esprú Tropical con Sulfonamidas poco Absorbibles.

Maldonado, N., Horta, E., Guerra, R. y Pérez-Santiago, E. Sección de Hematología, Departamento de Medicina, Hospital Universitario, Escuela de Medicina de la UPR, San Juan, Puerto Rico.

Esprú tropical es una entidad clínica que se caracteriza por malabsorción intestinal y en su forma crónica usualmente aboca en anemia megaloblástica. El uso de agentes antimicrobianos en el tratamiento de esprú tropical data desde la introducción de Prontosil. Estudios posteriores señalaron los efectos beneficiosos de sulfaguanidina en el tratamiento de esprú tropical agudo. Ulteriormente estudios realizados por otros investigadores demostraron la efectividad de los antibióticos de amplio espectro en el tratamiento de esta enfermedad.

Nuestros estudios señalan, por vez primera, el uso de sulfonamidas poco absorbibles y los cambios que se producen en pacientes con esprú tropical antes y después de ser tratados con sulfasuxidina o sulfaguanidina por un período de seis meses. Los estudios se llevaron a cabo en 16 pacientes. Se observó una regresion de los síntomas en todos los pacientes y todos ganaron peso. La absorción de la xylosa retornó a la normalidad en 12 pacientes y mejoró significativamente en 4. Se demostró esteatorrea en 9 de 12 pacientes, la cual desapareció en los 6 pacientes a quienes se les repitió la prueba. Las biopsias de yeyuno demostraron que la lesión intestinal mejoró considerablemente en 15 pacientes, pero en ninguno de ellos retornó a la normalidad. La hemoglobina que varió entre 4.5 y 12.6 gm fue de 13 gm o más en 15 pacientes después del tratamiento. La megaloblastosis revirtió a eritropoyesis normoblástica en 12 pacientes y cambios de deficiencia mínima de ácido fólico y/o vitamina B-12 se observaron en 4 pacientes. Los niveles séricos de vitamina B-12 fueron anormales en 11 de 13 pacientes y al final del tratamiento se obtuvieron valores normales en 10 de ellos. Deficiencia de ácido fólico estaba presente en 14 de 15 pacientes y dicha deficiencia persistió en 7 pacientes. La respuesta hematológica en 6 pacientes fue tardía y se observó un aumento en la hemoglobina durante la cuarta y la octava semana de tratamiento.

La efectividad de las sulfonamidas en el tratamiento de esprú tropical y su acción limitada al lumen del tracto gastrointestinal provee evidencia indirecta en cuanto a la posible etiología infecciosa de esprú tropical.

(62)

Distribution of Tissue Water in Rat Jejunum Incubated in Vitro

Michael J. Jackson and Marie M. Cassidy, Department of Physiology, George Washington University, Washington, D. C.

During the incubation of everted sacs of rat jejunum there is an increase in the degree of hydration of the gut wall. This observation has been related by previous workers to the finding of sub-epithelial extracellular

lakes on histological examination. However, no expansion of the sub-epithelial extracellular space determined by dilution techniques was observed in experiments covering a wide range of rates of fluid transport and tissue fluid uptake. Structural studies showed that the sub-epithelial extracellular lakes were observed only in tissue fixed and embedded by conventional techniques. Sections prepared from tissue frozen in liquid nitrogen did not show this structural anomaly, although tissue prepared in this way did not appear to undergo fluid loss during the freezing procedure. It was suggested that the sub-epithelial spaces, characteristic of embedded sections, were a fixation artefact due to cell shrinkage, and support for this suggestion was obtained by the direct measurement of epithelial cell dimensions. Further support for the concept that the fluid taken up by the tissue occupied an intracellular locus was obtained in studies in which tissue fluid uptake was altered by osmotic or metabolic techniques. A statistically significant correlation between cell volume and tissue uptake was found. (Supported by USPHS Grant Nos. AM 13240, FR-05359, and GM-14440.)

(63)

Transport of Benzoic Acid by Everted Sacs of Rat Small Intestine

Michael J. Jackson, Yih-Fu Shiau, and Marie M. Cassidy. Department of Physiology, George Washington University, Washington, D. C.

A study was made of the transport of benzoic acid by everted sacs of rat small intestine. It was found that when sacs prepared from the jejunal region were incubated in bicarbonate buffered saline containing 10 mM benzoic acid, transport of the acid from mucosal to serosal side occurred, and a concentration gradient was established in which the final serosal concentration was significantly greater than the final mucosal concentration. Transport of benzoic acid was greatest in the middle and lower jejunum, and no transport against a concentration gradient occurred in the ileum. Jejunal transport of this compound was stimulated in the presence of glucose and fructose, inhibited by galactose and metabolic inhibitors, and exhibited sodium dependence. Due to the toxicity of benzoic acid at concentrations greater than 15 mM it was not possible to demonstrate unequivocal evidence of saturation kinetics. However, the finding that transport of benzoic acid was inhibited by phenylacetic acid, but not by aliphatic carboxylic acids, suggested that the process involved in benzoic acid transport exhibits some chemical specificity. It is concluded that the rat jejunum possesses a mechanism for the transport of some aromatic carboxylic acids analagous to that previously described for the transport of short-chain aliphatic carboxylic acids but distinct from it. (Supported by USPHS Grant No. AM 13240.)

(64)

Estudios de la Absorción en 19 Casos de Arteritis Crónica Intestinal

J. P. Delmont, C. Mercier, A. Chamlian, J. P. Remacle, H. Monges, Departamentos de Gastroenterología y Cirugía Vascular (A. Lena), Facultad de Marsella.

Los autores han estudiado la absorción de los lípidos (técnica de Van de Kamer), de la Vitamina B12- ^{58}Co (Prueba de Schilling), de la d.xilosa y la prueba de Gordon (P. V. P. - Iodo reactivo) en 19 enfermos (sobre una estadística de 34 casos de arteritis crónica coeliomesentérica). Estos 19 casos presentan las lesiones siguientes: Mesentérica superior: tapada o estrecha en 13 casos (aislada: 4; con trombosis o stenosis de una o de las 2 otras arterias: 9); normal en 6 casos pero con ambas otras arterias tapadas o muy estrechas. Ningún caso de esteatorrea química ha sido encontrado. Tres de las 15 pruebas de Schilling han sido inferiores a 7 porciento. En 1 caso de by-pass aortomesentérico el resultado ha pasado de 2, 4 a 6 porciento. De las 16 pruebas de Gordon, 4 quedaron anormales; en un caso corrección (de 9.5 a 0.3 porciento) después de la curación quirúrgica. La absorción de la d. xilosa ha sido normal en todos excepto 2 casos. La mucosa resultó normal en las 7 biopsias. Los autores concluyen que la malabsorción isquémica es escasa y generalmente incompleta y no patente (infraclínica).

(65)

Histopatología y Deficiencia de Disacaridasas en el Esprú Tropical

F. Febles-Vizcarrondo, M. Pérez-Vilar y A. A. Cintrón-Rivera, Centro de Investigaciones Clínicas y Departamento de Medicina, Escuela de Medicina, Universidad de Puerto Rico, San Juan, Puerto Rico.

Utilizando la cápsula de Crosby-Kugler, se obtuvo por biopsia material representativo de la mucosa yeyunal en 142 pacientes con un diagnóstico clínico probable

del esprú tropical. El tejido obtenido fue dividido en dos partes iguales, la primera fue fijada en una solución neutral de formol amortiguado para examen histopatológico, y la segunda fue congelada por exposición a nitrógeno líquido inmediatamente después de obtenida. Se utilizó el método de Dahlquist para el análisis de las disacaridasas. El 76 porciento de los casos demostraron lesiones típicas del esprú tropical. Se encontraron niveles normales de disacaridasas en todos aquellos con histología normal. Por el contrario, se observaron deficiencia de disacaridasas en el 36 porciento de los casos con el cuadro de una yeyunitis no específica; en el 50 porciento de los casos con lesiones leves; el 68 porciento de los casos con alteraciones moderadas, y el 84 porciento de los casos con hallazgos severos del esprú tropical. Se notaron ligeras alteraciones en la actividad de la sucrasa y de la maltasa pero no en forma tan aparente como en el caso de la lactasa. Como resultado de estas observaciones, concluímos de que hay una relación estrecha entre los cambios histopatológicos y el grado de deficiencia de disacaridasas (especialmente la lactasa), en el esprú tropical.

(66)

Giardiasis and Malaborption: Histological, Electronomicrographical and Enzyme Studies

Dres. J. V. Martins Campos, Dorina Barbieri, Thales de Brito, Eduardo Marcondes, Gilson Quarentei y Ondina B. Nascimento Filha

The intestinal parasites in Brasil, constitute a serious problem of public health because they affect large parts of the population. *Giardia lamblia*, mainly in children, is the most frequent and is found in the majority of patients, carrier of chronic diarrhea with malabsorption.

Up to now, the pathogenic mechanism of this flagellate against small intestine, is not sufficiently established, although Takano and cols. have demonstrated its capacity to induce cytostructural alterations in the epithelium.

The authors of the present work tried to analyze a group of children, carrier of *Giardia lamblia*, without any other parasitosis or general implications, such as, undernutrition. The parasite was identified in the faeces as well as in the duodenal juice. These children were submitted to absorption tests and peroral jejunal biopsy. The mucosa was studied under the histological, electronomicrographical and enzymatic point of view (disaccharidasis, phosphatases and succinodehydrogenase).

The histological study showed invariably the presence of corpus of the parasite attached to the mucous layer with different degrees of cellular infiltration with lymphocytes, plasmatic cells and eosinophilic cells. No indication of a suggestive lesion by the parasite, intracellular or intralaminar penetration, were registered.

The electronomicrographical study also revealed corpus of the parasite recovering, in frontal sections, three to four epithelial cells; however, it did not show the cytostructural alterations Indicated by Takano and cols.

The enzymatic dosages revealed great variations for the different enzymes and succino-dehydrogenase increases, in contrast with the expected results. This fact makes us to believe that such enzyme may be present in the parasite cytoplasm, conducting to false results.

The absorption tests, generally abnormal, in contrast with the absence of evident lesions make us to suppose that the mechanisms which cause the malabsorption may be through the mechanic blockade of the mucosa surface - hypothesis already raised by many other authors - or through impairment of active processes of absorption provoked by anti-metabolites or inhibition factors produced by the parasite.

(67)

Efectos de la Acción de los Fermentos y Sales Biliares sobre la Esteatorrea de Gastrectomizados, verificados por la Prueba de Lípidos Radioactivos.

D. Rosenberg, N. Carvalho y E. R. Rosenberg. Facultad de Medicina, Universidad de Campinas y Centro de Medicina Nuclear, Sao Paulo, Brasil.

Los A. A. estudian 72 enfermos (52 hombres y 20 mujeres), gastrectomizados según las técnicas Billroth I y II, con o sin vagatomía troncular, casos que fueron divididos en grupos; a unos de los cuales se administró per os, una mezcla de fermentos y sales biliares en dosis variadas, y a otros les fue dado a ingerir un placebo y un producto que contenía dosis insuficiente de enzimas. La prueba de lípidos radioactivos se llevó a efecto en un total de 188 veces. Los resultados del estudio, habiendo sido sometidos a análisis estadístico cuantitativo y cualitativo, revelaron alteración en la digestión de las grasas en 79.2 porciento de los casos, y de la absorción en 92.4 porciento; la esteatorrea, se constató más frecuentemente en los operados con Billroth I (66.7 porciento), habiendo sido igual en los casos Billroth II con o sin vagotomía. Asi mismo, los fermentos

y sales biliares, ejercieron una acción más benéfica sobre la digestión y la absorción de las grasas en los operados con la técnica Billroth I, y, tanto el placebo como el producto con contenido ineficiente de enzimas, se revelaron ineficaces en este sentido.

(68)

Alteraciones de la Digestión y la Absorción de los Lípidos en Colecistectomizados. Acción Substitutiva por Fermentos y Sales Biliares. Estudio con Radioisótopos.

D. Rosenberg, N. Carvalho y E. R. Rosenberg. Facultad de Medicina, Universidade de Campinas y Centro de Medicina Nuclear, Sao Paulo, Brasil.

Los A. A. estudian 55 colecistectomizados (13 hombres y 42 mujeres), en los cuales fueron hechas pruebas de trioleina I^{131} y ácido oleico I^{131}. Posteriormente los casos fueron divididos en grupos que recibieron dosis diarias de 6 y 8 grageas de un producto que contenía fermentos y sales biliares, en cuanto otro grupo recibía un placebo. El análisis estadístico cualitativo y cuantitativo de los resultados, constató la existencia de esteatorrea con la prueba de la trioleina en 43.7 porciento, y con el ácido oleico en 31.1 porciento de los colecistectomizados. Los fermentos y sales biliares redujeron la esteatorrea en 88.8 porciento de los casos, utilizando ambas dosis mencionadas, en cuanto que el placebo, fue totalmente ineficaz.

(69)

Studies on the Role of Biotransformation and Enterohepatic Circulation in Pharmacokinetics of Methyl Mercury Salts

T. Nnrseth and T. W. Clarkson, University of Rochester, Rochester, New York

Exposure to salts of mcthylmercury may result in severe and irreversible damage to the central nervous system. Biotransformation of such compounds may lead to cleavage of the carbon mercury bond with release of mercury, hereafter called inorganic mercury. Fecal excretion is the main excretory pathway of mercury after exposure to methylmercury salts. As a result of biotransformation, approximately 5 to 10 percent of the mercury in bile is inorganic. However, selective intestinal reabsorption of the organo-mercurial results in a much higher proportion of inorganic mercury in the feces. Inorganic mercury is protein bound in bile while cysteine is the predominant organic form. The organ distribution in the rat of reabsorbed methylmercury cysteine is different from that of the injected methylmercury chloride with a higher concentration in the kidney and a lower levcl in the brain. The importance of the present results can be summarized: 1) A relatively limited biotransformation is responsible for a high proportion of the total excretion because of selective intestinal reabsorption related to different binding in bile; 2) Enterohepatic recirculation leads to a redistribution of the compound in the animal with consequences for the development of toxic effects; 3) Differences in clinical toxicity of methylmercury salts of different origin may be explained by different handling in the gastrointestinal tract; 4) The high intestinal turnover of mercury after such exposure may serve as the basis for a diagnostic excretion test or clinical treatment after exposure to methylmercury salts.

(70)

Bile Salt Metabolism in Tropical Sprue

Gerald Bevan, Richard Engert, Frederick A. Klipstein, Norman I. Maldonado, Enrique O. Horta, and Michael D. Turner, Divisions of Gastroenterology, University of Rochester School of Medicine, Rochester, New York, and the Division of Hematology and the Clinical Research Center, University of Puerto Rico School of Medicine, San Juan, Puerto Rico.

After a standard meal of corn oil and orange juice, samples of intestinal content were obtained by aspiration from midjejunum in 6 Puerto Rican subjects with steatorrhea due to untreated tropical sprue. These were analyzed for total bile salt concentration and individual bile salts by enzymatic oxidation and thin-layer chromatography. In all aspirates studied, the bile salt concentration was 2 millimolar or less. Unconjugated bile acids were found in only one individual. In the same subjects, the specific activity of total and individual bile acids was determined in jejunal bile after cholecystokinin at 3, 6, 24, 48, and 72 hours after 5uC of 24-^{14}C-cholate intravenously. Five subjects had a smaller than normal bile salt pool and in all six the half life of total ^{14}C-bile was less than 36 hours (reported normal 72 hours). These results suggest that there is some loss of bile salts in tropical sprue with a reduced jejunal concentration. This abnormality may be in part responsible for the steatorrhea.

(71)

Intestinal Malabsorption and Immunoglobulin A

Deficiency

E. A. Gelzayd, J. L. McCleery, C. S. Melnyk and S. C. Kraft, University of Chicago, Chicago, Ill.

The apparent local production of immunoglobulin A (IgA) by lymphoid cells of the intestinal mucosa and the prominence of secretory IgA in enteric fluids have led to the hypothesis of an immunological protective barrier at mucosal surfaces. A number of patients have been described with a variety of immunoglobulin deficiencies and sprue-like syndromes. The present study describes clinical, radiological, histological, immunological and immunohistochemical observations on such a patient in order to emphasize the differences between nontropical sprue, IgA-deficient sprue and so-called hypogammaglobulinemic lymphoid enteropathy. The subject was a 28-year old man with weight loss, steatorrhea and x-ray evidence of small intestinal dilatation, segmentation and flocculation. Peroral biopsies demonstrated partial villous atrophy of the proximal jejunal mucosa with markedly diminished numbers of plasma cells. He had no detectable serum or secretory IgA, as well as decreased serum concentrations of IgM and IgG. Free "secretory piece" was present in the parotid saliva. The lamina propria of the small bowel and rectum had very rare IgA-containing lymphoid cells and reduced numbers of IgM and IgG cells. Both humoral and cellular immune responses were elicited. Chromosomal analyses of circulating lymphocytes were normal. There was initial improvement with gluten restriction but he was unable to adhere to the diet and subsequently responded well to tetracycline therapy. Despite a sustained clinical remission, the failure of intestinal lymphoid cells containing IgA to increase in number, a continued absence of detectable serum IgA, and persistently low serum IgM and IgG levels, suggested that these defects were on a primary basis. The possible relationship between the immunoglobulin deficiency and the structural and functional changes in the intestine is difficult to assess, however, as is the explanation for the efficacy of tetracycline. While this patient does not have conventional nontropical sprue, he also does not fall solely into either the category of IgA deficient sprue or hypogammaglobulinemic lymphoid enteropathy. The findings support the concept of an overlapping spectrum of immunological abnormalities and associated intestinal manifestations. Such cases indicate the need to at least quantify serum immunoglobulins in all persons with intestinal malabsorption.

(72)

Síndrome de Mala Absorción por Fístula Gastro Yeyuno Colónica

P. B. Camilletti, O. Molina Ferrer, C. A. Pascual, R. M. Bacman y J. C. Salvetti.

Prescindiendo del juicio que merece la clasificación de estos síndromes, en quirúrgicos y no quirúrgicos, incluímos nuestro caso objeto de la presentación, en el primero de estos grupos. El interés de esta comunicación reside en calificarla como de síndrome de mala absorción quirúrgico, de curso evolutivo subagudo, de tres a cinco meses de instalación, con grave compromiso disabsortivo y consecuente afectación de sistemas y parénquimas. Esto se traduce por una pérdida ponderal de veinte kilogramos en la faz clínica y un test de Van de Kamer de 17 gramos de grasa por día en la faz biológica. Síntesis anatómica: úlcera duodenal perforada, gastrectomía subtotal de urgencia, fístula gastro yeyuno colónica. Comprobando la gravedad del rol que juega la fístula en cuestión en la producción del síndrome de mala absorción, se observa la pronta recuperación del enfermo conseguida mediante la derivación con desfuncionalización colónica en un primer tiempo, seguida posteriormente de anastomosis término terminal.

VI. COLON

(73)

Changing Concepts Regarding Diverticular Disease

Gordon McHardy, Browne-McHardy Clinic, 3636 Saint Charles Avenue, New Orleans, La., 70115

A new look of diverticular disease centers about better understanding regarding the principal site of significant occurrence, its pathogenesis, its potentiality, and its more rational management.

Congenital factors of tissue weakness, concomitance of hiatal hernia and diverticuli elsewhere indicating predisposition, vascular penetrations creating muscular separation, and aging with its concomitant degeneration of collagen tissue are the important factors predilecting the sigmoid segment. Its fixed position, its narrow lumen, and its sphincteric behavior, coupled with prolonged exposure, increased abrasion and bacterial flora, rationalize the involvement of this segment. Recent combined manometric and fluorocinematography studies have furthered a conclusive concept of muscular myochosis resulting from work hypertrophy of the sigmoid segment. The resultant localized high intraluminal pressure leads to a progressive sequence from a pre-diverticular state, to the formation of diverticula, to diverticular distention, to their abrasion, to vascular congestion, to predispose to complication. With our attention focused on the sigmoid, we are indicating the predilection to this site for significant diverticular disease.

Manometric study additionally clues us in on the bizarre states of hypertonicity, potentiated by morphine and prostigmine, the relative innocuousness of Demerol as an analgesic, and the therapeutic efficacy of anticholinergics. Through these therapeutic leads, there is acquired a rationalization of increased dietary residue, to preclude bowel approximation and segmental distention. In animal experimentation and in clinical observation, the residue unquestionably influences the incidence of diverticulosis.

The proper use of antimicrobials and the correction of anorectal and pelvic disease that may contribute to sigmoid embarrassment complete the medical approaches.

When we are unable to medically relieve the painful localized manifestations of noninflammatory, hypertonic sigmoid dysfunction, showing a sawtooth pattern on barium study, we may anticipate this prediverticular state will progress. Surgical consideration should include prophylactic myotomy or segmental resection. Hopefully, the management problems inherent to diverticular complications, with their forbidding morbidity and mortality, may in the future become infrequent through proper analysis of prediverticular states, their proper management and a prophylactic attitude in progressive disease.

(74)

La Prueba de la Tolerancia a la Lactosa en Colitis Ulcerativa Crónica.

C. Garrido Klinge y C. Garrido Pinson. Departamento Medicina, Universidad Peruana Cayetano Heredia, Hospital A. Loayza, Lima.

Se hace un estudio de la tolerancia a la lactosa en 8 pacientes dentro de un grupo de 19 casos registrados en 15,765 historias clínicas. Seis de los 8 casos arrojaron curvas de tolerancia a la lactosa planas y presentaron marcados trastornos intestinales durante el desarrollo de la prueba; resultando la curva normal en los 2 casos restantes.

Se hace un comentario sobre el significado de estos hallazgos y su posible relación con la etiopatogenia y cronicidad del proceso.

(75)

Polyps of the Colon and Rectum

Steven C. Silverberg, Medical College of Virginia, Richmond, U. S. A.

Five hundred cases of polypoid lesions of the colon and rectum (excluding villous adenomas and frank carcinomas) seen in the Surgical Pathology Laboratory of the Medical College of Virginia Hospitals during the period 1951-1963 were reviewed histolo-

gically, and were classified as follows: benign adenomatous polyps, 289 cases; adenomatous polyps containing foci of malignancy, 70 cases; "juvenile" retention polyps, 88 cases; and hyperplastic polyps, 53 cases. Typical examples of each type of lesion are presented. Fourteen percent of the cases of retention polyps occurred in patients more than 20 years of age, but none were associated with malignancy; 24 percent were multiple, including 2 instances of multiple retention polyps in siblings. Hyperplastic polyps occurred almost exclusively in adults, as did adenomatous polyps; both types were discovered frequently as incidental findings in segments of large intestine resected for carcinoma. 19.5 percent of all adenomatous polyps were found to contain foci of carcinoma; malignant change was seen more frequently in large polyps, in sigmoid as opposed to rectal polyps, and in polyps discovered incidentally in a cancer resection specimen. Since cancer occurs rarely in polyps less than 1 cm. in diameter, and fairly commonly in larger polyps, we recommend polypectomy for all lesions greater than this size, with frozen section examination of the pedicle, if one is present; if this is negative for cancer, polypectomy is adequate therapy, but if cancer is found in the pedicle or if the lesion is sessile, a more extensive procedure is advised. Our survival figures confirm the wisdom of this approach.

(76)

Air Contrast Colon Examinations

C Wm. Rogers, MD, Trover Clinic, Madisonville, Kentucky, U. S. A.

A search for a better method for examination of the colon resulted in the adoption of a form of air contrast study in the author's institution. While the procedure is more tedious than the usual filled colon examination, technical personnel have been taught to perform the entire examination, with significant saving of time to the radiologist. Several illustrative cases are presented which show small polyps and carcinomas not seen with the usual method of examination.

(77)

A Nurse's Experience with the Silicone Foam Enema

Galen B. Cook, MD, Cancer Research Center and Ellis Fischel State Cancer Hospital, Columbia, Mo.

A series of 80 silicone foam molds of the distal colon administered and recovered by a nurse and interpeted by a physician were made in tandem with sigmoidoscopic examinations performed by surgical residents. Seventy-one percent of the molds were passed in less than 30 minutes; all were passed in less than 48 hours. There was a significant ($< .025$) inverse relation between the speed of expulsion of the mold and the subject's age. The sigmoidoscopic examination was preferred to the silicone foam enema examination by only 3.5 percent of the patients.

In this series, digital examination of the rectum combined with the silicone foam examination was as sensitive and far more time-conserving as an occult disease detection method than digital examination combined with the sigmoidoscopic examination.

VII. ENDOSCOPIA
VII. ENDOSCOPY

(78)

Use of the Fiberoptic Esophagoscope in the Stomach

B. H. Sullivan, Jr., Cleveland Clinic, Cleveland, Ohio, U. S. A.

The Olympus EF fiberoptic esophagoscope has certain features which make it particularly useful in the examination of the distal esophagus, cardia and upper stomach as well as gastroenteric stomas. To assess its value, the results of 208 examinations were reviewed. In 70 instances the principal lesion was at the cardia (26), gastroenterostomy (23), pyloroplasty (3), or body of the stomach (18). Lesions at the cardia were all seen and 16 of the 20 biopsy specimens were confirmatory of the diagnosis. The stoma was visualized in 21 instances and one or both of the jejunal loops inspected in 15. The pyloroplasty was identified by the presence of suture material in 2 instances. Use of another instrument was unnecessary or added no additional information in 13 of the 18 cases where the body of the stomach was inspected; 6 of 8 biopsies were confirmatory. The antrum and pylorus could not be regularly demonstrated with the esophagoscope. Hemorrhage was the indication for 57 esophagoscopies; in 31 of these examinations gastric lesions were also found (Mallory-Weiss 3, erosive gastritis 22, gastric ulcer 2, other 4). Five gastric lesions were noted in the remaining 81 examinations performed for strictly esophageal problems. The fiberoptic esophagoscope with deflectable tip and biopsy facility is useful in examination of the cardia and body of the stomach and gastroenteric stomas but is not always satisfactory in the antrum of the stomach. Photographs and biopsies provide useful substantiation of the nature of the lesions demonstrated.

(79)

Utilidad de la Gastrocámara GTF-A en el Diagnóstico de las Enfermedades del Estómago.

I. Zaidman, H. Garnica y A. Calvo Lairet. Departamento de Gastroenterología y Cirugía de la Clínica de Prevención del Cáncer. Sociedad Anticancerosa, Caracas, Venezuela.

En 274 exámenes realizados en 244 pacientes ambulatorios consecutivos con clínica gastroduodenal, hechos entre noviembre 1967 y mayo 1969, se encontraron alteraciones en 25 porciento de los casos. Se diagnosticaron y comprobaron histologicamente 15 casos de carcinoma avanzado. En 4 casos se diagnosticó carcinoma con radiología y clínica dudosas, pero no se han podido confirmar por qué los enfermos abandonaron el control. En un caso donde se pensó en carcinoma por endoscopia y radiología se comprobó una úlcera con gran inflamación de la mucosa. Hubo 13 casos de úlcera, de los cuales 5 tuvieron radiología dudosa; un caso con una úlcera en la parte alta de la curva menor no se pudo ver a la endoscopia. En 20 casos con radiología normal, se encontró un pequeño neurofibroma y otras lesiones dificiles de clasificar, la mayoría de las cuales desaparecieron. Hubo un caso con recidiva tumoral en el muñón con radiología normal. En muchos enfermos con pequeñas alteraciones radiológicas se pudo precisar la normalidad del estómago. La gastrocopia con la Gastrocámara GTF-A, es un examen simple, sin complicaciones, bien tolerado por la mayoría de los pacientes. La visualización de la cavidad gástrica es casi completa, el orificio pilórico verdadero puede verse en un alto porcentaje de casos; la porción horizontal de la curva menor se ve completa y el cardias se vió en el 95 porciento de los casos en que se intentó. La parte alta de la curva menor y la zona adyacente de la cara anterior son las únicas áreas dificiles de ver. El documento fotográfico es excelente y elimina el componente subjetivo del examen, ya que puede ser revisado y discutido. Con frecuencia la revisión de la fotografía, evidencia alteraciones que pasaron desapercibidas durante la gastroscopia. Estamos convencidos que es el complemento ideal de la radiología en el estudio de todos los pacientes con clínica digestiva alta.

(80)

Observaciones Acerca de 200 Casos de Gastro-Cámara en República Dominicana

Aulio R. Brea, Departamento de Investigaciones y Enseñanza Médica IDSS.

El propósito de esta contribución es mostrar la experiencia obtenida de 200 casos a través de estudios de gastrocámara; se hace reseña histórica de su origen y se comenta seguidamente sobre los diferentes tipos que existen; enfatizando en la utilidad práctica de cada uno de ellos, especialmente en la GTV, GTVa, y GTFII dotados de sus cámaras intragástricas, por ser estos, con los que realizamos nuestros estudios. Todos y cada uno de los casos presentaban síntomas o signos gástricos o ambas cosas, teniendo su estudio radiográfico del tracto gastrointestinal superior. En la preparación de los enfermos se explica la conducta pre y post anestésica. Se comenta la forma cómo se introduce la gastrocámara, la posición sentada es la preferida. Se demuestra la importancia del método como un buen procedimiento de investigación, diagnóstico y pronóstico en las afecciones gástricas. De los 200 estudios, 27 fueron gastritis crónicas atróficas, 26 gastritis superficiales, 16 gastritis crónicas hipertróficas, 5 cánceres gástricos, 4 úlceras gástricas, 4 gastritis crónicas hiperplásticas, un lipoma y un caso de pseudoxantoma elástico.

(81)

Cinematografía Endoscópica en el Cáncer del Esófago

Dr. Gregorio Sztern, Cátedra de Medicina Interna D. de la Facultad de Medicina de la Plata

Esta documentación nos permitió apreciar la patología esofágica vinculada al cáncer, exponiendo las conclusiones, diagnósticos y terapéuticos en forma didáctica.

En este trabajo hemos documentado endoscópicamente en color y Roentgencinematográficamente al cáncer de esófago. El tratamiento endoscópico fue documentado por los mismos métodos, demostrando el aporte de la práctica endoscópiça, como tratamiento paliativo, a través de las simples dilataciones con las bujías de plástico, o con los dilatadores metálicos del equipo de Soutarn, dirigidos por una guía, o bien por la introducción por vía endoscópica del tubo metálico de Soutarn.

Hemos conseguido esta documentación bajo anestesia general, usando el equipo francés de Fourestier Vulmiere, empleando película cinematográfica, Kodachrone 11 color, luz artificial.

Como conclusión, decimos que, el material obtenido es didáctico, certifica o modifica conceptos, diagnósticos y terapéuticos. Por su particularidad es de suma utilidad para la enseñanza.

(82)

Endoscopic Studies in Gastric Lymphoma.

R. S. Nelson, F. L. Lanza, and B. N. Somayaji. The University of Texas M. D. Anderson Hospital and Tumor Institute at Houston, Houston, Texas.

Thirty-five patients with gastric lymphomas were studied by endoscopy to determine whether gross diagnosis could be made by visualization of lesions, color photography, and gastric biopsy. The instruments used were the Olympus GTF-A fibergastroscope with gastrocamera, and Machida FGS-B biopsy fibergastroscope. Leiomyosarcomas appeared as submucosal masses, single or multiple, in comparison with leiomyomas, which were all single in type. Most demonstrated mucosal necrosis at a central point, and it was impossible to differentiate the 2 lesions with certainty. Lymphomas, including Hodgkin's disease, were widely infiltrative in almost all cases, some with superficial ulcerations, and while the lesions could be identified as malignant, the differential between lymphoma and carcinoma was impossible in the majority. An exception was reticulum cell sarcoma. Four of these patients exhibited crater-like ulcers which seem to be specific for this disease. Biopsies were obtained in 4 patients, in all of whom it was possible to confirm the diagnosis histologically. Endoscopy aids in detecting the malignant nature of gastric lymphomatous lesions. It may be decisive in reticulum cell sarcoma and where biopsy is obtained.

VIII. MISCELANEOS
VIII. MISCELLANEOUS

(83)

Immunological Deficiency and the Gastrointestinal Tract

Henry J. Binder, MD and Harold O. Conn. MD., Yale University

Hypogammaglobulinemia represents a unique experiment in nature. Several gastrointestinal abnormalities not infrequently occur in patients with acquired hypogammaglobulinemia. Diarrhea and Addison's pernicious anemia are both associated with hypogammaglobulinemia more frequently than by chance alone. Neither etiology or pathogenesis of either the diarrhea or the intrinsic factor deficiency is known.

Seven patients with hypogammaglobulinemia with and without gastrointestinal dysfunction were intensively studied in an attempt to delineate the mechanism of these abnormalities.

The four subjects with diarrhea demonstrate the spectrum of findings observed in similar patients: steatorrhea, Giardia lamblia infestation, normal jejunal biopsies, a "flat" biopsy, associative ulcerative colitis, and a varied response to therapy were all present. Gamma globulin administration controlled the diarrhea of one patient. The prime importance of IgA globulin is supported by the cessation of diarrhea following plasma infusion in another patient. However, the observation of absent IgA globulin levels in three patients without diarrhea is unexplained.

Quantitative of immunoglobulins in ten patients with steatorrhea of a variety of etilogies failed to reveal any further examples of hypogammaglobulinemia.

Two patients with pernicious anemia and hypogammaglobulinemia were also investigated. Vitamin B_{12} malabsorption was definitely secondary to intrinsic factor deficiency and not to a defect in intestinal absorption. This was demonstrated by differential Schilling tests and direct gastric intrinsic factor assay. No abnormalities of immune globulins were observed in a survey of 18 additional patients with pernicious anemia. However, the nature of this association is not known. The absence of intrinsic factor and parietal cell antibodies mitigates against a primary role of these antibodies in the pathogenesis of pernicious anemia.

(84)

Choque Séptico en Peritonitis de Origen Digestivo

Dr. Alberto Villazón S. y Dr. Miguel Guevara, Hospital Español de México, D. F.

Se mencionan brevemente las principales causas de choque séptico en padecimientos gastroenterológicos, analizando los principales trastornos fisiopatológicos que conducen a la muerte. Se analizan los estudios efectuados en 30 pacientes mediante la medición seriada de los siguientes parametros: pulso, presión arterial, respiración, temperatura, presión venosa central, hgb., htc., volumen sanguíneo total, masa eritrocítica, pH, PCO_2, HCO_3, gases en sangre arterial y venosa, gasto cardíaco, resistencia periférica total, mls. de orina por hora y estimaciones de función ventricular, tono vascular neto y grado relativo de comunicaciones precapilares. Los hechos más demostrativos encontrados son los siguientes: Hipovolemia relativa, disminución progresiva de la masa eritrocítica, inversión de la relación normal entre hematocrito central y capilar, índice cardíaco por lo general normal o elevado, alteraciones variables del equilibrio ácido-básico tanto metabólicas como respiratorias, depresión miocárdica, disminución del tono vascular neto y aumento de posibles comunicaciones precapilares, diversos grados de insuficiencia respiratoria.

La mortalidad se relacionó principalmente con la oportunidad del tratamiento, con el grado de acidosis metabólica, con la alteración respiratoria, la intensidad y persistencia de la oliguria, y al tipo de respuesta obtenido en las alteraciones microcirculatorias.

(85)

Extraordinary Longevity in Pancreatic Carcinoma with Metastasis: Review of 10 Cases

Earl E. Gambill, MD, Section of Medicine, Mayo Clinic, Rochester, Minn.

In a comprehensive study of the clinical, laboratory, surgical, and pathologic features of 255 cases of pancreatic carcinoma, there were 10 patients who lived a mean of 5.5 years (median 4.2) after surgical exploration and histologic demonstration of proximal and distal metastases secondary to pancreatic carcinoma. This is in sharp contrast to a median duration of life of only 4.25 months among the remaining 244 patients with pancreatic carcinoma (7 with ampullary plus 237 with adenocarcinoma).

One of the 10 patients had a nonfunctioning delta islet cell carcinoma, is still alive 6 4/12 years after surgical exploration and histologic examination disclosed metastases to the liver, periaortic nodes, and small bowel mesentery. Another 1 of the 10 is still alive after surgical and histologic examination disclosed metastases in the liver, stomach, and duodenum 8 years ago. The remaining 8 patients died the following number of years after surgical exploration and histologic demonstration of pancreatic carcinoma, with distal as well as more proximal metastases in eight of the nine patients: 1 2/12, 1 11/12, 3 3/12, 3 7/12, 4 2/12, 7, 9 8/12 and 13 3/12 years. The 8 thus lived for a mean of 5 6/12 years (median 4 3/12) in the presence of obvious and extensive metastases which, with one exception, were not removed at operation. In 8 of the 10, metastases in the liver as well as more proximally were noted at the time of diagnosis.

Of the 10 patients, 3 had adenocarcinoma and 7 had islet cell carcinoma. Of these 7 islet cell carcinomas, three were of nonfunctioning types; one was of the functioning beta cell type, the patient living and working for 9 8/12 years in the presence of local and massive hepatic metastases until massive gastrointestinal hemorrhages ended his life; and three were of the functioning delta islet cell type, producing multiple peptic ulcers (Zollinger-Ellison syndrome).

Reasons why patients having islet cell tumors are prone to live much longer than those having adenocarcinoma are discussed. The need for correct tissue diagnosis of all pancreatic tumors is stressed for obvious reasons.

(86)

The Yale Affiliated Gastroenterology Program— University-Community Hospital Cooperation in the Training of Medical Specialists

Robert S. Rosson, MD, FACP, Howard M. Spiro, MD, FACP, Yale University School of Medicine, New Haven, Conn.

Digestive diseases in the United States rank high among the causes of hospitalization, death and economic loss. The supply of trained specialists to cope with these disorders has not kept pace with the demand. There are only about 1500 gastroenterologists in the United States; 24 of the 50 states have fewer than 10 and four states have none at all.

In an effort to increase the supply of gastroenterologists utilizing existing medical resources and personnel in Connecticut, the Yale Affiliated Gastroenterology Program (YAGP) was organized in September 1968. The program (which is supported by a grant from the Bureau of Health Manpower of the USPHS) has established one year clinical traineeships in gastroenterology in six community hospitals, each within an hour's drive of New Haven. The programs are supported by the community hospitals under the supervision of local practicing gastroenterologists. Regular visits are made by the trainees to Yale-New Haven Hospital for teaching rounds and conferences, and regular visits are made to the participating hospitals by members of the gastroenterological faculty at Yale.

Under this program the output of gastroenterologists in Connecticut has risen from 3 per year by the "Core" Program at Yale to 12 per year by the Program as a whole. This four-fold increase was accomplished without the addition of a single new building at any of the hospitals or an increase in the number of gastroenterological faculty members at Yale. The salaries of the trainees and funds for teaching visits and diagnostic equipment represent a relatively small investment by the community hospitals.

In addition to increasing the supply of gastroenterologists the program has produced many advantages to the community hospitals and to Yale. The major thrust of the YAGP program is found in the interaction between the gastroenterology fellow in the community hospital and the other physicians and health personnel with whom he comes in contact. At the local hospital these contacts not only include gastroenterologists, radiologists, surgeons, pathologist and general practitioners but also nurses, dietitians, laboratory technicians and other health per-

sonnel. The affiliated hospital gastroenterology fellow thus provides a communications link between the university and the health team at the community hospital. This application of the principle of communication across specialty lines should ultimately result in better patient care.

This paper will describe the goals, organization, and operations of the Yale Affiliated Gastroenterology Program.

(87)

Arteriografía Selectiva Abdominal

Dres. M. Guelrud, J. Valencia-Parparcén, H. Niño, D. Pisani y M. Dao. Hospital Universitario de Caracas, Venezuela.

Se revisaron protocolos correspondientes a 106 pacientes estudiados en el Hospital Universitario de Caracas. El método usado fue el cateterismo selectivo arterial mediante punción percutánea de la arteria femoral según técnica de Seldinger. Se estudiaron 54 enfermos sospechosos de padecimientos del hígado, 8 del páncreas, 10 con tumores, 11 con aneurismas, 17 del riñón y 6 misceláneos. En 54 procesos del hígado la arteriografía contribuyó al diagnóstico de 7 hepatomas, 22 metástasis, 9 cirrosis, 6 fibrosis bilharziana, 5 cavernomatosis portal, 2 quistes hepáticos, 1 absceso hepático amibiano, 1 granulomatosis hepática tuberculosa y 1 equinococosis hepática. En los 8 procesos del páncreas, el método contribuyó al diagnóstico de 5 adenocarcinomas, 1 quiste, 1 pancreatitis aguda y 1 pancreatitis crónica. En los 10 casos de tumores, el método contribuyó al diagnóstico de 7 tumores retroperitoneales, 1 tumor retrogástrico inflamatorio, 1 leiomiosarcoma gástrico y 1 leiomiosarcoma de intestino delgado. De los 17 procesos renales, 5 fueron normales, 2 tumores, 3 quistes, 4 pielonefritis crónica, 1 hidronefrosis, 1 nefritis post-irradiación y 1 agenesia renal. En los 11 aneurismas, 7 fueron renales, 3 esplénicos y 1 hepático y esplénico. En el grupo de los 6 misceláneos, el método contribuyó al diagnóstico de 1 hemorragia digestiva, 1 esplenomegalia y 4 aortitis. Se considera que el método es de utilidad en el diagnóstico de los procesos abdominales y sobre todo cuando el diagnóstico no ha podido ser hecho por otros procedimientos más usuales.

(88)

Plan Seguido para un Curso de Post-Grado en Gastroenterología

Dres. Emilio Candía Candía, César E. Louis, C. y José Antonio Araujo, Hospital Carlos J. Bello de la Cruz Roja Venezolana, Caracas, Venezuela

El programa de enseñanza que dura dos años, comprende fundamentalmente un entrenamiento práctico y se aplica en desarrollar los diferentes aspectos de la Especialidad en lo referente a: Consulta externa, Hospitalización e Internado, Radiología, Endoscopia, Laboratorio, Asistencia a Intervenciones quirúrgicas y Anatomía Patológica.

Desde el punto de vista teórico se contemplan: la asistencia a Conferencias, Seminarios, Consulta de textos y Revistas de la Especialidad con elaboración de fichas bibliográficas y Preparación en Inglés médico.

Al final del Curso, un Jurado compuesto por miembros de la Sociedad Venezolana de Gastroenterología, de la Cátedra de la Especialidad y del propio Servicio donde se realizó el Curso, hace una Prueba objetiva de Evaluación de conocimientos a los alumnos antes de entregarles la Credencial que los acredite como especialistas.

La aplicación de este Plan por varios años ha dado positivo rendimiento en cuanto a la formación de varias promociones de Gastroenterólogos que actualmente ejercen en forma satisfactoria la Especialidad en diferentes sitios del país.

(89)

Empleo de un Nuevo Hilo de Sutura, Absorbible, Sintético (el Acido Piliglicólico) en Cirugía, Especialmente Gastro-Intestinal

D. Rosenberg, C. Frazatto, Jr., N. A. Brandalise, L. S. Leonardi, Facultad de Medicina, Universidad de Campinas, Sao Paulo, Brasil.

Un nuevo hilo de sutura sintético, absorbible, un polimero del ácido glicólico, también conocido como ácido hidroxiacético, no colageno y no alergénico, fue empleado en 31 pacientes en los cuales fueron realizadas 32 distintas intervenciones quirúrgicas, sobre todo gastrointestinales, como gastrectomías, colecistectomías, y otras. Además de la observación habitual en el hospital, fueron hechos en el pre-operatorio y repetidos en el post-operatorio, algunos exámenes de laboratorio adicionales como transaminasas, fosfatasa alcalinas y otros. Como conclusión se puede decir que el ácido piliglicólico se reveló como un buen material de sutura, fuerte, flexible, de manejo fácil, bien tolerado, y su utilización no determinó ninguna complicación en las operaciones de la pared abdominal como de suturas gastro-intestinales.

EDITORIALES

UNDECIMO CONGRESO PANAMERICANO DE GASTROENTEROLOGIA

Puerto Rico ha sido seleccionado como Sede para el XI Congreso Panamericano de Gastroenterología que se celebrará en esta Ciudad Capital desde el 26 al 31 de octubre de este año.

Este honor había recaído antes en 10 de los países que componen la Organización de Estados Latino-Americanos. A este Congreso esperamos contar con la colaboración de clínicos, cirujanos, patólogos, radiólogos, microbiólogos, parasitólogos, nutricionistas, fisiólogos, en fin, una pléyade de estrellas en el campo de la Gastroenterología.

La reunión de distinguidos especialistas de todas las naciones del mundo necesariamente tiene que producir un gran intercambio de ideas que beneficiarán a todos, sin distinción de raza, religión o creencias políticas, ayudando a salvar vidas y añadir más vida a los años.

En la tarde del martes 28 de octubre se reunirá por segunda vez el Comité Latinoamericano para el Estudio de la Cirrosis para intercambiar ideas y experiencias en relación a la etiología, curso clínico, diagnóstico, tratamiento y clasificación de las enfermedades que afectan el hígado.

La idea de llevar a cabo estos Congresos germinó en la dinámica personalidad del distinguido profesor argentino, doctor Udaondo Bonarino. Los primeros Congresos necesariamente atrajeron un grupo pequeño, pero distinguido, de gastroenterólogos latinoamericanos que regaron las semillas necesarias para lograr el crecimiento de la gastroenterología panamericana, constituyendo hoy en día, el Congreso Panamericano, el foro principal de la especialidad. La Sociedad Puertorriqueña de Gastroenterología, afiliada a la Asociación Interamericana de Gastroenterología, ha tenido la gran responsabilidad de auspiciar y organizar el XI Congreso Panamericano de Gastroenterología. Esta es una ardua tarea, llena de asperezas, frustraciones, ansiedades, dolores de cabeza y además, ulcerógena y simpaticomimética. Otros lo han hecho y es nuestra esperanza que, con la ayuda de todos y cada uno, podamos llevarla a feliz realidad. La organización de este Congreso no hubiese sido posible sin la ayuda generosa del Estado Libre Asociado de Puerto Rico.

En consonancia con los problemas médicos de Puerto Rico, la Comisión Organizadora ha creído importante que los temas oficiales del Congreso son: Cáncer Gastrointestinal, Microbiología, Parasitismo, Hipertensión Portal, Educación en Gastroenterología y Malabsorción Intestinal.

La Comisión Organizadora del Congreso desea extender una calurosa invitación a la Profesión Médica de Puerto Rico a concurrir a este magno acontecimiento que se celebrará por primera vez en Puerto Rico y así confraternizar con nuestros colegas del Nuevo y del Viejo Mundo.

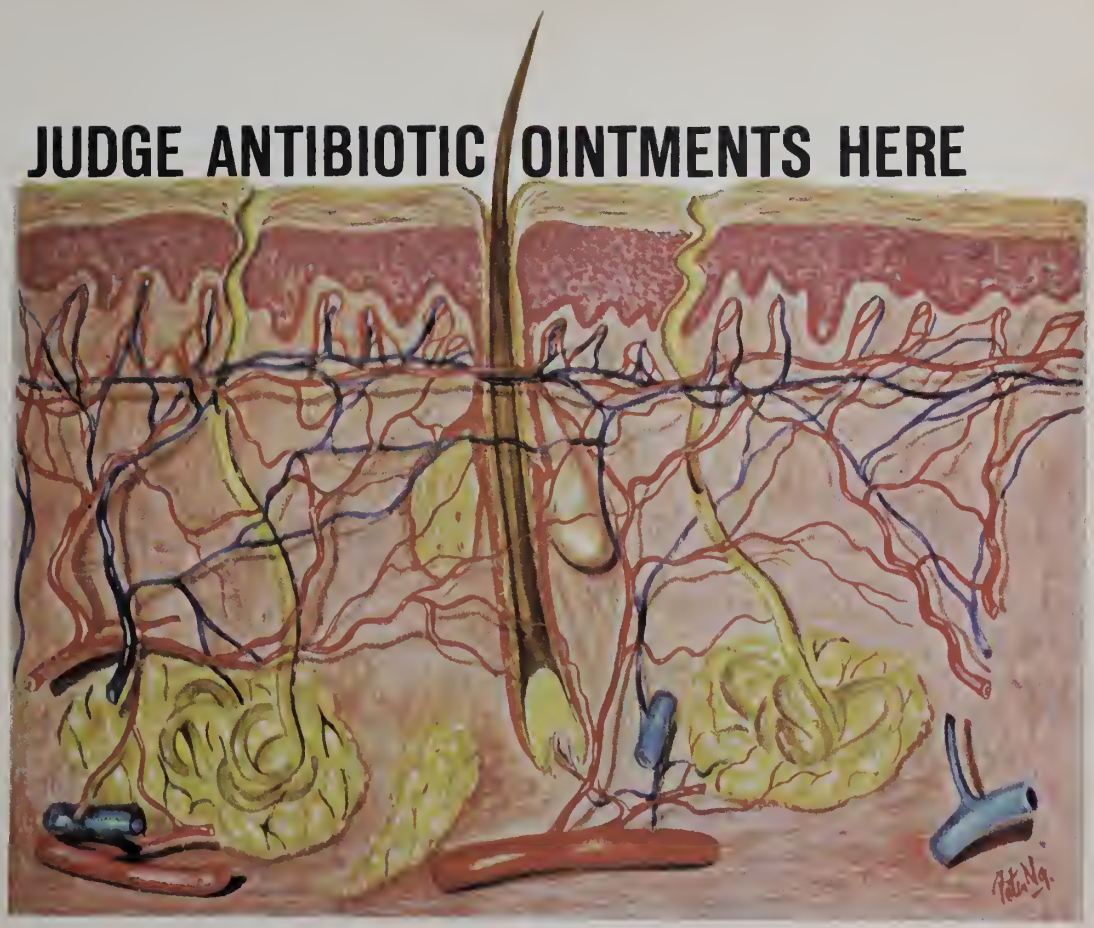
Federico Hernández Morales, MD
Presidente Congreso

BIENVENIDOS

El Boletín se honra al prestar sus páginas al XI Congreso Latinoamericano de Gastroenterología en ocasión de su reunión en San Juan. Al dar la bienvenida a nuestros colegas de toda la América, esperamos que las deliberaciones entre nuestros eminentes visitantes contribuyan a la solución de muchos de los problemas que en este campo necesitan elucidación.

Julio V. Rivera, MD

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

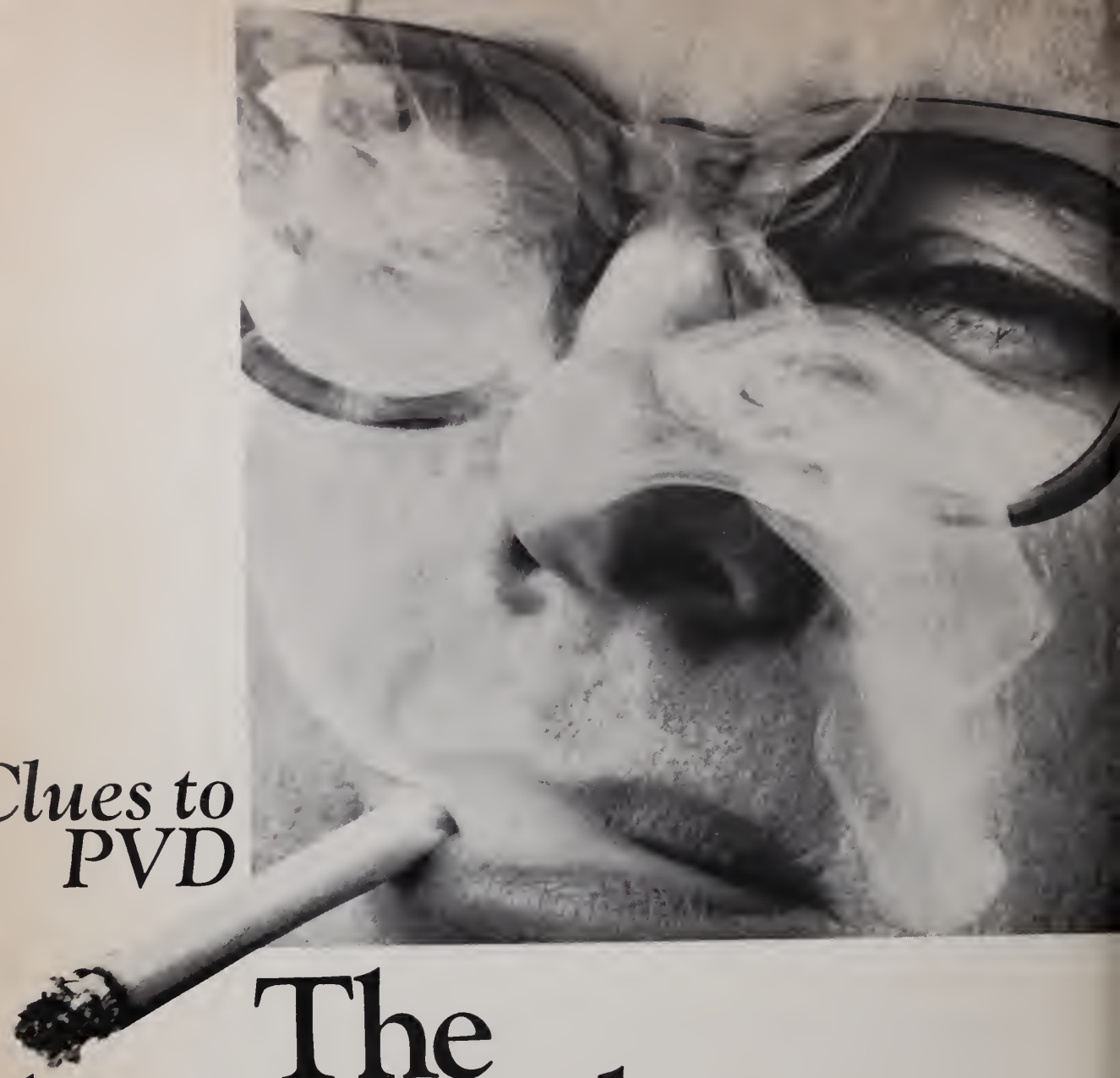
Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®

brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.



Clues to PVD

The heavy smoker with vasospasm

He may be comparatively young or approaching middle age. Typically, he is a heavy cigarette smoker—a pack or more a day for a number of years. Whether smoking is a causative or an important exacerbating factor in peripheral vascular disease is still under discussion. But the vasoconstrictive effects of nicotine are firmly supported by a substantial body of laboratory and clinical evidence, and the close association is now generally accepted.

Thus, a history of heavy smoking coupled with vasospasm may serve as warning signals to the physician. When a diagnosis is established, therapeutic measures are directed toward increasing the local circulation, and appropriate management of the patient's general medical needs should be instituted. These include the important safeguards of keeping warm and refraining from smoking.

Before prescribing Roniacol Timespan (nicotinyl alcohol tartrate), please consult complete product information, a summary of which follows.

Indications: Conditions associated with deficient circulation; e.g., peripheral vascular disease, vascular spasm, varicose ulcers, decubital ulcers, chilblains, Meniere's syndrome and vertigo.

Caution: Roche Laboratories endorses caution in the administration of any therapeutic agent to pregnant patients.

Side Effects: Transient flushing, gastric disturbances, minor skin rashes and allergies may occur in some patients, seldom requiring discontinuation of the drug.

Dosage: 1 or 2 Timespan Tablets morning and night.

How Supplied: Timespan Tablets—150 mg nicotinyl alcohol in the form of the tartrate salt —bottles of 50.

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

mportant in
otal management of
eripheral vascular disease,
ascular spasm or
hilblains

Roniacol® Timespan®

(nicotinyl alcohol tartrate)

or relief of ischemic symptoms

venience of b.i.d. dosage—sustained-release Timespan Tablets usually provide onged relief of ischemic symptoms with two doses daily.

oothness of onset—the action of Roniacol (nicotinyl alcohol) is smooth and dual in onset, rarely causing severe flushing.

ctivity of action—relaxes the musculature of peripheral blood vessels.

h degree of safety—side effects seldom require discontinuation of therapy.



Preludin®
phenmetrazine hydrochloride

Preludin is indicated only as an anorexigenic agent in the treatment of obesity. It may be used in simple obesity and in obesity complicated by diabetes, moderate hypertension (see Precautions), or pregnancy (see Warning).
Contraindications: Severe coronary artery disease, hyperthyroidism, severe hypertension, nervous instability, and agitated prepsychotic states. Do not use with other CNS stimulants, including MAO inhibitors.
Warning: Do not use during the first trimester of pregnancy unless potential benefits outweigh possible risks. There have been clinical reports of congenital malformation, but causal relationship has not been proved. Animal teratogenic studies have been inconclusive.
Precautions: Use with caution in moderate hypertension and cardiac decompensation. Cases involving abuse of or dependence on phenmetrazine hydrochloride have been reported. In general, these cases were characterized by excessive consumption of the drug for its central stimulant effect, and have resulted in a psychotic illness manifested by restlessness, mood or behavior changes, hallucinations or delusions. Do not exceed recommended dosage.
Adverse Reactions: Dryness or unpleasant taste in the mouth, urticaria, overstimulation, insomnia, urinary frequency or nocturia, dizziness, nausea, or headache.
Dosage: One 25 mg. tablet b.i.d. or t.i.d. Or one 75 mg. Endurets tablet a day taken by midmorning.
Availability: Pink, square, scored tablets of 25 mg. for b.i.d. or t.i.d. administration, in bottles of 100 and 1000.
Pink, round Endurets® prolonged-action tablets of 75 mg. for once-a-day administration, in bottles of 100 and 1000. (B)R3-46-560-B

Under license from
Boehringer
Ingelheim G.m.b.H.

For complete details, please see full prescribing information.

Geigy Pharmaceuticals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502





They run a good chance of losing weight.

Exercise and Preludin run together in helping patients to lose weight.

Preludin often puts a curb on appetite and promotes a sense of well-being. By boosting a dieter's spirit, Preludin may help patients get the exercise you may prescribe.

One Endurets tablet taken between breakfast and midmorning usually provides daylong and early-evening suppression of appetite.

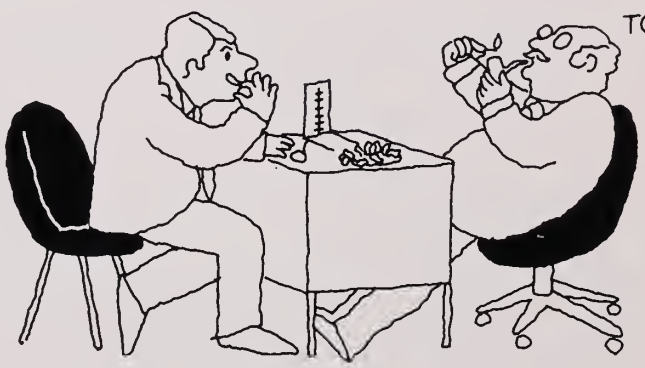
A few patients may experience overstimulation or insomnia. For a brief summary of all adverse reactions, precautions, warning and contraindications, please see the adjoining page.

Preludin® phenmetrazine hydrochloride **Endurets®** prolonged-action tablets

Geigy

The Apprehensive Hypertensive

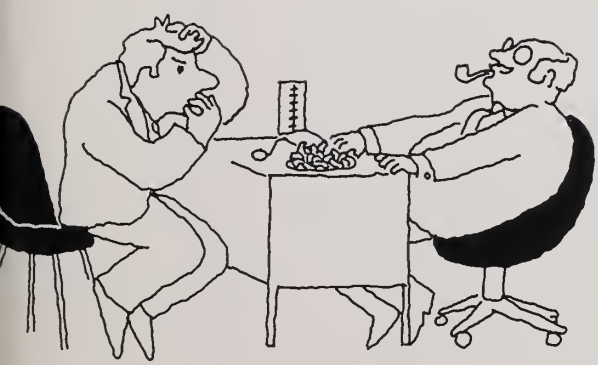




Regroton® to lower blood pressur

chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

Regroton®: chlorthalidone 50 mg., reserpine U.S.P. 0.25 mg.
Indications: Hypertension. *Contraindications:* History of mental depression, hypersensitivity, and most cases of severe renal or hepatic diseases. *Warning:* With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has frequently been required and deaths have occurred. Discontinue coated potassium-containing formulations immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur. Discontinue one week before electroshock therapy, and if depression or peptic ulcer occurs. *Use in pregnancy:* Because chlorthalidone may cross the placental barrier and appear in cord blood and thiazides may appear in breast milk, this drug should be used with care in pregnant patients and nursing mothers. When used in women of childbearing age, the potential benefits of the drug should be weighed against the possible hazards to the fetus. Use of chlorthalidone may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. Incr se respiratory secretions, nasal congestion, cyanosis and anorexi m occur in infants born to reserpine-treated mothers. *Precautions:* A th pertensive therapy with this drug should always be initiated caut as in postsympathectomy patients and in patients receiving gang m blocking agents, other potent antihypertensive drugs, or curare. R ug dosage of concomitant antihypertensive agents by at least one-h T avoid hypotension during surgery, discontinue therapy with this ve two weeks prior to elective surgical procedures. In emergency si en use, if needed, anticholinergic or adrenergic drugs or other sup th measures as indicated. Because of the possibility of progress h renal damage, periodic kidney function tests are indicated. Disco m if the BUN rises or liver dysfunction is aggravated. Hepatic com m be precipitated. Electrolyte imbalance, sodium and/or potassiu de pletion may occur. If potassium depletion should occur during th ap the drug should be discontinued and potassium supplements ve provided the patient does not have marked oliguria. Take particul ca in cirrhosis or severe ischemic heart disease and in patients re





ınd allay anxiety in hypertension

costeroids, ACTH, or digitalis. Severe salt restriction is not recommended. Use cautiously in patients with ulcerative colitis or gallstones ary colic may be precipitated). Bronchial asthma may occur in eptible patients. *Adverse Reactions:* The drug is generally well ated. The most frequent side effects are nausea, gastric irritation, ting, diarrhea, constipation, muscle cramps, headache, dizziness acute gout. Other potential side effects include angina pectoris, ety, depression, bradycardia and ectopic cardiac rhythms (espey when used with digitalis), drowsiness, dull sensorium, hyperglya and glycosuria, hyperuricemia, lassitude, restlessness, transient bia, impotence or dysuria, orthostatic hypotension which may be ntiated when chlorthalidone is combined with alcohol, barbiturates arcotics, leukopenia, aplastic anemia, skin rashes, thrombocyto-a, agranulocytosis, nasal stuffiness, increased gastric secretions, mare, purpura, urticaria, ecchymosis, weakness, uveitis, optic hy and glaucoma, and pruritus. Eruptions and/or flushing of the a reversible paralysis agitans-like syndrome, blurred vision, conival injection, increased susceptibility to colds, dyspnea, weight gain, decreased libido, dryness of the mouth, deafness, anorexia, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Jaundice, xanthopsia, paresthesia, photosensitization and necrotizing angiitis are possible. *Average Dosage:* One tablet daily with breakfast. *Availability:* Pink, single-scored tablets in bottles of 100 and 1000. (B)46-600-C

For details, please see complete prescribing information.

Regroton®
chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

Geigy Pharmaceuticals
Division of Geigy Chemical Corporation
Ardsley, New York 10502

RE-6742

When it's more than a bad cold



your patient can feel better while she's getting better

Achrocidin®

Tetracycline HCl—Antihistamine—Analgesic Compound

Each tablet contains: ACHROMYCIN® Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Caffeine 30 mg.; Salicylamide 150 mg.; Chlorothen citrate 25 mg.

In bacterial/allergic u.r.i., ACHROCIDIN brings the treatment together in a single prescription—prompt relief of headache and congestion together with effective control of the tetracycline-sensitive organisms frequently responsible for complications leading to prolonged disability in the susceptible patient.

For children and elderly patients you may prefer caffeine-free ACHROCIDIN Syrup. Each 5 cc contains: ACHROMYCIN (Tetracycline) equivalent to Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Salicylamide 150 mg.; Ascorbic Acid (C) 25 mg.; Pyrilamine Maleate 15 mg.

Average adult dosage: 2 tablets four times daily, given at least one hour before, or two hours after meals.
Contraindications: History of hypersensitivity to any component.
Warning: If renal impairment exists, even usual doses may lead to liver toxicity. Under such conditions, lower than usual doses are indicated and, if therapy is prolonged, serum level determinations may be advisable. Hypersensitive individuals may develop a photodynamic reaction to natural or artificial sunlight during use. Individuals with a history of photosensitivity reactions should avoid direct exposure while under treatment, which should be discontinued at first evidence of skin discomfort.
Precautions: Some individuals may experience drowsiness, anorexia, and slight gastric distress. If excessive drowsiness occurs, it may be necessary to increase the interval between doses. Persons on full dosage should not operate any vehicle. Use may result in overgrowth of nonsusceptible organisms. If infections appear during therapy, appropriate measures should be taken. Infections caused by beta-hemolytic streptococci should be treated for at least 10 full days to help prevent rheumatic fever or acute glomerulonephritis. Use of tetracycline during tooth development may cause discoloration of teeth.
Adverse Reactions: Gastrointestinal—anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. Skin—maculopapular and erythematous rashes (a case of exfoliative dermatitis has been reported); photosensitivity; onycholysis and discoloration of nails (rare). Kidney—rise in BUN, apparently dose related. Hypersensitivity reactions—urticaria, angioneurotic edema, anaphylaxis. In young infants, bulging fontanels following full therapeutic dosage has been reported. This has disappeared rapidly when drug was discontinued. Teeth—dental staining (yellow-brown) in children of mothers given tetracycline during the latter half of pregnancy and in children given the drug during the neonatal period, infancy, and early childhood. Enamel hypoplasia has been seen in a few children. Blood—anemia, thrombocytopenic purpura, neutropenia, eosinophilia. Liver—cholestasis (rare), usually at high dosage. If adverse reaction or idiosyncrasy occurs, discontinue medication and institute appropriate therapy.

Lederle

927-8

for the patient who has "everything"...



Cheracol® Capsules

for temporary relief of minor aches, pains, headache and stuffy nose due to the common cold

Each capsule contains:

Chlorpheniramine Maleate	2 mg.
Orthoxine® (methoxyphenamine) Hydrochloride	25 mg.
Aspirin	324 mg. (5 grs.)
Caffeine Anhydrous	32.4 mg. (½ gr.)

Indications: Temporary relief of symptoms of common cold. Not recommended for children under 12 years.

Warnings: Frequent or prolonged use may cause nervousness, restlessness or drowsiness. Patients should not drive or operate machinery while taking this medication. Use with caution in patients with high blood pressure, heart disease, diabetes or thyroid disease.

Dosage: One capsule every 4 hours. Not more than four capsules should be taken in 24 hours.

Supplied: Available in packages of 24 capsules.

---

also available:

Cheracol D® Syrup

for temporary relief of coughs due to common colds and minor throat irritations

Each fluid ounce contains:

Dextromethorphan Hydrobromide	7/10 gr. (60 mg.)
Chloroform*	2 grs.
Glyceryl Guaiacolate	1⅔ grs.
Ammonium Chloride	8 grs.
Antimony Potassium Tartrate	1/12 gr.
Alcohol	3%

with white pine and wild cherry bark

*Some loss of chloroform is unavoidable.

Dosage: *Adults* – 1 to 2 teaspoonfuls. *Children 6 to 12 years* – ½ to 1 teaspoonful. *Children 2 to 6 years* – ½ teaspoonful. Repeat in four hours, if necessary, but not more than four times in 24 hours.

This preparation should not be administered to children under two years of age unless directed by a physician.

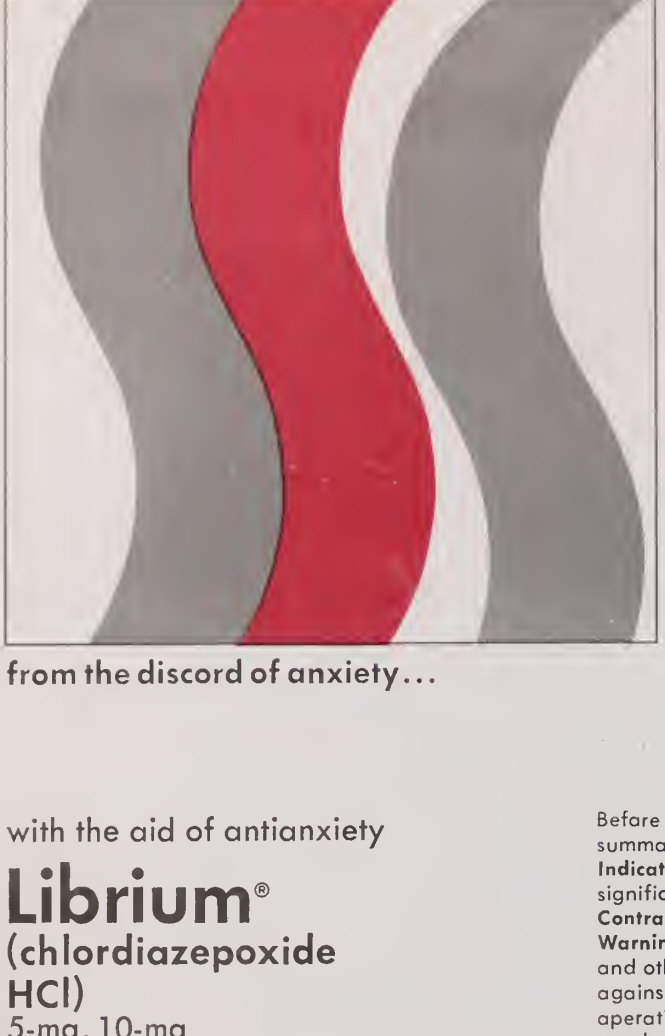
Supplied: Bottles of 2 and 4 fluid ounces.

© 1969 BY THE UPJOHN COMPANY

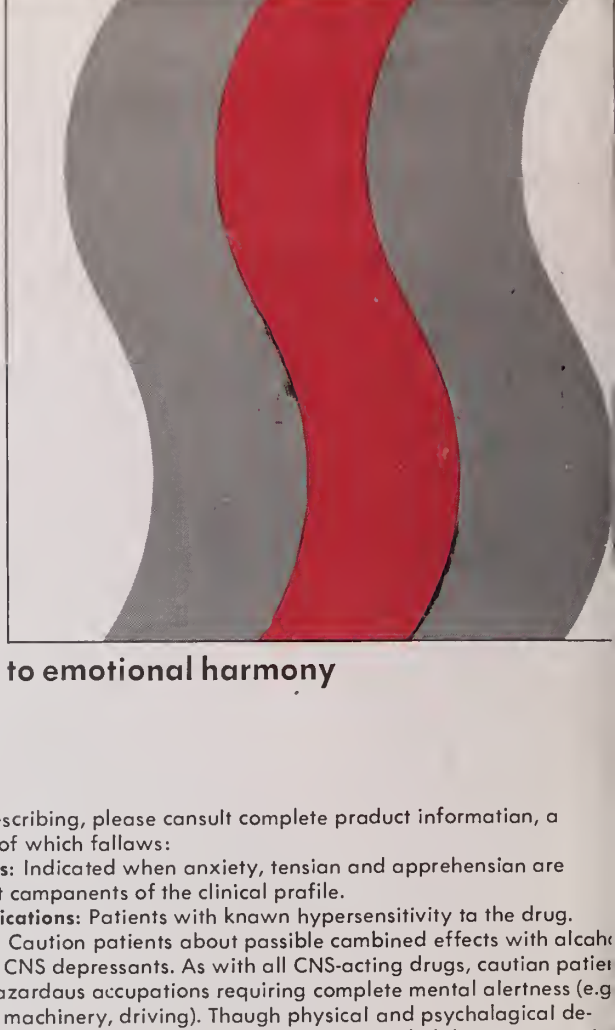
693 PR 5354 1

UPJOHN INTER-AMERICAN CORPORATION
CAPARRA/PUERTO NUEVO

Upjohn



from the discord of anxiety...



to emotional harmony

with the aid of antianxiety

Librium®
(chlordiazepoxide HCl)
5-mg, 10-mg and 25-mg capsules

In an age of swift change and challenge, susceptible individuals may experience varying degrees of excessive anxiety. The resulting emotional stress may precipitate significant functional disorders or complicate existing organic disease. In properly individualized maintenance dosage, Librium (chlordiazepoxide HCl) quickly helps relieve anxiety and apprehension, provides useful adjunctive therapy in psychophysiologic disorders—yet seldom impairs mental acuity or ability to function. Librium has demonstrated a wide margin of safety in short- and long-term therapy.

Also available:
Libritabs®
(chlordiazepoxide)

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Before prescribing, please consult complete product information, a summary of which follows:
Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.
Contraindications: Patients with known hypersensitivity to the drug.
Warnings: Caution patients about possible combined effects with alcoh and other CNS depressants. As with all CNS-acting drugs, caution patie against hazardous occupations requiring complete mental alertness (e.g operating machinery, driving). Though physical and psychological de- pendence have rarely been reported on recommended doses, use cautio administering to addiction-prone individuals or those who might increas dosage; withdrawal symptoms (including convulsions), following discon tinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed agai its possible hazards.
Precautions: In the elderly and debilitated, and in children over six, limi smallest effective dosage (initially 10 mg or less per day) to preclude at or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommende combination therapy with other psychotropics seems indicated, carefull consider individual pharmacologic effects, particularly in use of potenti drugs such as MAO inhibitors and phenothiazines. Observe usual pre- cautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Em usual precautions in treatment of anxiety states with evidence of impen ing depression; suicidal tendencies may be present and protective meas necessary. Variable effects on blood coagulation have been reported ve rarely in patients receiving the drug ond oral anticoagulants; causal rel tionship has not been established clinically.
Adverse Reactions: Drowsiness, ataxia and confusion may occur, especi in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lo dosage ranges. In a few instances syncope has been reported. Also en- countered are isolated instances of skin eruptions, edema, minor menstr irregularities, nausea and constipation, extrapyramidal symptoms, incr and decreased libido—all infrequent and generally controlled with dos reduction; changes in EEG patterns (low-voltage fast activity) may appe during and after treatment; blood dyscrasias (including agranulocytosis jaundice and hepatic dysfunction have been reported occasionally, mak periodic blood counts ond liver function tests advisable during protract therapy.

SHELVES

67a CONVENCION ANUAL DE LA AMPR

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

RESUMENES DE TRABAJOS PRESENTADOS EN EL PROGRAMA CIENTIFICO . . 351

LEYES QUE REGULAN LA PRACTICA DE LA MEDICINA EN PUERTO RICO 366

REGISTRO DE HOSPITALES Y CASAS DE SALUD 378

EXHIBICIONES CIENTIFICAS Y TECNICAS 391

IN MEMORIAN 393

EDITORIAL 394
Al Final de un Año

NOTICIAS 395

VOL. 61 OCTUBRE, 1969 NUM. 10


if he exercises

if he stops smoking if he takes Arlidin® (nylidrin HCl) the improvement can be significant!

in peripheral vascular disease: **EXERCISE** "Exercise is the specific physiologic stimulus for producing vasodilation in skeletal muscle."[1] **SMOKING** "The first and most important consideration of treatment is firm insistence that the patient stop smoking immediately and permanently. The reason for this is the powerful vasoconstricting action of smoking which is responsible for diminishing the peripheral circulation to a great degree."[2] **ARLIDIN** The overall physiological effect of a therapeutic agent should be similar to exercise—that is, both to increase cardiac output and to produce peripheral vasodilation.[3] "The ideal agent should be administered in the same way that we prescribe exercise—that is, three or four times a day for many years rather than for several weeks. The therapeutic goal is to increase blood flow through the capillary beds by way of a patent and constantly expanding collateral blood supply. At this time, I am aware of only one agent which fulfills the requirements as outlined above, namely nylidrin (Arlidin)."[3]

Contraindications: Acute myocardial infarction. (Following myocardial infarction, the initiation or reestablishment of this therapy should be undertaken in the same way as physical exercise. After a reasonable healing period, gradual upward adjustment of dosage to therapeutic levels may be attempted.) **Precautions:** Use with caution in the presence of a recent myocardial lesion, paroxysmal tachycardia, severe angina pectoris and thyrotoxicosis. **Adverse Reaction:** Occasional palpitation. **Dosage:** ½ to 1 tablet (3 to 6 mg.) three or four times a day is the usual effective dosage; increased, if necessary, to 2 tablets three or four times a day. Parenterally, 0.5 cc. by subcutaneous or intramuscular injection; increased gradually to 1 cc. one or more times daily, as needed. **Available:** Tablets: 6 mg. scored, bottles of 50, 100, and 500. Parenteral: 5 mg. per cc., 1 cc. ampuls (6 per box); 10 cc. multiple-dose vials (1 per box). **References:** 1. deCrinis, K., Redisch, W. and Steele, J.M.: Proc. Soc. Exper. Biol. Med. *102*:29, 1959. 2. Samuels, S.S.: Med. Times *88*:332, 1960. 3. Karpman, H.L.: Canad. Med. Ass. J. *94*:457, 1966.

arlidin®
(nylidrin HCl)

USV

USV PHARMACEUTICAL CORPORATION
New York, N.Y. 10017

Why DBI-TD (phenformin HCl) is the only significant advance in oral diabetes therapy since sulfonylureas



□ glucose ○ insuli

1 Only DBI-TD does more than just lower blood sugar–it directs sugar primarily to where it is most needed... in muscle.

In the maturity-onset diabetic, blood sugar is elevated, but apparently not enough glucose enters muscle. Unlike other agents, DBI-TD increases glucose utilization primarily in skeletal muscle where sugar is needed.

2 Only DBI-TD actually promotes weight loss in the maturity-onset diabetic who is overweight.

All oral drugs *except* DBI-TD increase insulin release, which suppresses lipolysis and can accelerate lipogenesis. Thus DBI-TD, by avoiding insulin oversecretion, appears to ease—rather than aggravate—the weight problem in patients unresponsive to diet alone.

3 Only DBI-TD, among oral agents, helps counterbalance the inefficient action of the diabetic's own insulin.

There is increasing evidence that many overweight maturity-onset diabetics have higher than normal blood insulin levels, but this insulin is not efficient in promoting muscle glucose uptake. Unlike all other oral agents, DBI-TD helps control diabetes by selectively moving sugar into muscle without further increasing insulin levels.

4 Only DBI-TD, because of its unique action, reduces the risk of secondary failure and hypoglycemic reaction.

DBI-TD is the only agent that lowers blood sugar without stimulating the release of insulin from the pancreas. Secondary failures are infrequent with DBI-TD, and there is relative freedom from hypoglycemic reaction when DBI-TD is used alone.

a more physiological approach to begin with

DBI®-TD

(phenformin HCl)

timed-disintegration capsules 50 mg.

Dosage: 1 to 3 capsules daily. **Side Effects:** Gastrointestinal, occurring more often at higher dosage levels, abate promptly upon dosage reduction or temporary withdrawal. **Adverse Reaction:** Urticaria. **Precautions:** Occasionally an insulin-dependent patient will show "starvation" ketosis (acetonuria without hyperglycemia) which must be differentiated from "insulin lack" ketosis which is accompanied by acidosis, and treated accordingly. Lactic acidosis has been reported in nondiabetics and diabetics treated with insulin, with diet, and with DBI. Question has arisen regarding possible contribution of DBI to lactic acidosis in patients with renal impairment and azotemia and also those with severe hypotension secondary to myocardial or bowel infarction. Periodic B.U.N. determination should be made when DBI is administered in the presence of chronic renal disease. DBI should not be used when there is significant azotemia. Any cardiovascular lesion that could result in severe or sustained hypotension, which may itself lead to development of lactic acidosis, should be considered cause for immediate discontinuation of DBI at least until normal blood pressure has been restored and is maintained without vasopressors. Should lactic acidosis occur from any cause, vigorous attempts should be made to correct circulatory collapse, tissue hypoxia, and pH. **Contraindications:** Severe hepatic disease, renal disease with uremia, cardiovascular collapse. Not recommended without insulin in acute complications of diabetes (metabolic acidosis, coma, severe infections, gangrene, surgery). ***Pregnancy Warning:*** *During pregnancy, until safety is proved, use of DBI, like other oral hypoglycemic drugs, is to be avoided.* **Also Available:** DBI tablets 25 mg. *Consult product brochure.*

USV

USV PHARMACEUTICAL CORP., New York, N.Y. 10017
Producers of ARLIDIN® (nylidrin HCl)

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistémicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.

Otro nuevo descubrimiento de Lakeside



cuando la depresión abruma

NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extraoiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.

Pertofrane® desipramine hydrochloride

Indication Mental depression

Contraindications Do not use MAO inhibitors concomitantly or within 2 weeks of the use of this drug. Hyperpyretic crises or severe convulsive seizures may occur with such combinations; potentiation of adverse reactions can be serious or even fatal.

When substituting Pertofrane in patients receiving an MAO inhibitor, allow an interval of at least 14 days. Initial dosage in such patients should be low and increases should be gradual and cautiously prescribed.

The drug is contraindicated following recent myocardial infarction and in patients with a known hypersensitivity to tricyclic antidepressants.

Warning Activation of psychosis may occasionally be observed in schizophrenic patients. Due to atropine-like effects and sympathomimetic potentiation, use only with the greatest care in patients with narrow-angle glaucoma or urethral or ureteral spasm.

Do not use in patients with the following conditions unless the need outweighs the risk: severe coronary heart disease with EKG abnormalities, progressive heart failure, angina pectoris, paroxysmal tachycardia and active seizure disorder (may lower seizure threshold).

Desipramine and the parent compound, imipramine, have been shown to block the action of guanethidine and related adrenergic neuron-blocking agents.

Hypertensive episodes have been observed during surgery.

The concurrent use of other central nervous system drugs or alcohol may potentiate adverse effects. Since many such drugs may be used during surgery, desipramine should be discontinued prior to elective procedures.

Caution patients on the possibility of impaired ability to operate a motor vehicle or dangerous machinery.

Do not use in women who are or may become pregnant unless the clinical situation warrants the potential risk, and do not use in patients under 12 years of age.

Because of increased sensitivity to the drug, use lower than normal dosage in adolescent and geriatric patients.

Precautions Potentially suicidal patients require careful supervision and protective measures during therapy. Discontinuation of the drug may be necessary in the presence of increased agitation and anxiety shifting to hypomanic or manic excitement.

Atropine-like effects may be more pronounced (e.g. paralytic ileus) in susceptible patients and in those receiving anticholinergic drugs (including antiparkinsonism agents).

Prescribe cautiously in hyperthyroid patients and in those receiving thyroid medications; transient cardiac arrhythmias have occurred in rare instances.

Periodic blood and liver studies should supplement careful clinical observations in all patients undergoing extended courses of therapy.

Adverse Reactions The following have been reported: *Nervous System* dizziness, drowsiness, insomnia, headache, disturbed visual accommodation, tremor, unsteadiness, tinnitus, paresthesias, changes in EEG patterns, epileptiform seizures, mild extrapyramidal activity, falling and neuromuscular incoordination. A confusional state (with such symptoms as hallucinations and disorientation), particularly in older patients and at higher dosage, may require discontinuation of the drug. *Gastrointestinal Tract* anorexia, dryness of the mouth, nausea, epigastric distress, constipation and diarrhea. *Skin* skin rashes (including photosensitization), perspiration and flushing sensations. *Liver* rare cases of transient jaundice (apparently of an obstructive nature) and liver damage. If jaundice or abnormalities in liver function tests occur, discontinue the drug and investigate. *Blood Elements* bone-marrow depression, agranulocytosis, thrombocytopenia and purpura. If these occur, discontinue the drug. Transient eosinophilia has been observed. *Cardiovascular System* orthostatic hypotension and tachycardia. Carefully supervise patients requiring concomitant vasodilating therapy, particularly during initial phases. *Genitourinary System* urinary frequency or retention and impotence. *Endocrine System* occasional hormonal effects, including gynecomastia, galactorrhea and breast enlargement, and decreased libido and estrogenic effect. *Sensitivity* urticaria and rare instances of drug fever and cross-sensitivity with imipramine.

Dosage All patients except geriatric and adolescent: 50 mg. t.i.d. (150 mg. daily). Dosage may be increased up to 200 mg. daily. Geriatric and adolescent patients should usually be started with lower dosage (25 to 50 mg. daily) and may not tolerate higher doses. Dosage may be increased up to 100 mg. daily.

Lower maintenance dosages should be continued for at least 2 months after obtaining a satisfactory response.

Mild anxiety and agitation which may accompany depression usually remit as the depression responds. Occasionally, however, a sedative or tranquilizer may be indicated.

Availability Maroon and pink capsules of 50 mg. in bottles of 100; pink capsules of 25 mg. in bottles of 100 and 1000. (B)46-530-G

For complete details, please see the full prescribing information.

Geigy Pharmaceuticals
Division of Geigy Chemical Corporation
Ardsley, New York 10502

Coming out of a depression.

And it can often begin to happen in 3 to 5 days with an antidepressant like Pertofrane. There's a lifting of depressed mood... a restoration of psychomotor activity. Patien usually begin to cope, work, maybe play, even enjoy.

It's not all beautiful. Sometimes there are side effects. And not everybody can take the drug. It may even b a slow process. But along with the care and comfort you give depressed patients, consider Pertofrane. Then consider the respo

Please read the prescribing information for full details on contraindications, warnings, precautions, adverse reactions and dosage. It's summarized on the left.

Pertofrane®

desipramine hydrochloride

New 50-mg. capsules now available

It's beautiful!





Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:

Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:

El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:

Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

(Act of October 23, 1962 Section 4369, Title 39, United States Code)

Publisher: File two copies of this form with your postmaster.
Postmaster: Complete verification on page 2

Form Approved, Budget Bureau No. 46-R029

1 DATE OF FILING
October 1, 1969

2 TITLE OF PUBLICATION
Boletín de la Asociación Médica de Puerto Rico

3 FREQUENCY OF ISSUE
Monthly

4 LOCATION OF KNOWN OFFICE OF PUBLICATION *(Street, city, county, state, ZIP code)*
Asociación Médica de Puerto Rico - Fernández Juncos Ave. 1305, Santurce, Puerto Rico

5 LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS *(Not printers)*
Same as above

6 NAMES AND ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR

PUBLISHER *(Name and address)*
Asociación Médica de Puerto Rico - P. O. Box 9387, Santurce, Puerto Rico 00908

EDITOR *(Name and address)*
Julio V. Rivera, MD - P. O. Box 9387, Santurce, Puerto Rico, 00908

MANAGING EDITOR *(Name and address)*
Gregorio Díaz, P. O. Box 9387, Santurce, Puerto Rico 00908

7 OWNER *(If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.)*

NAME	ADDRESS
Asociación Médica de Puerto Rico	Fernández Juncos Avenue 1305 P. O. Box 9387, Santurce, P. R., 00908

8 KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES *(If there are none, so state)*

NAME	ADDRESS
None	

9 FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES *(Section 132.122, Postal Manual)*

(Check one)

The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes

☒ Have not changed during preceding 12 months ☐ Have changed during preceding 12 months

(If changed, publisher must submit explanation of change with this statement.)

10 EXTENT AND NATURE OF CIRCULATION	AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NUMBER OF COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE
A TOTAL NO. COPIES PRINTED *(Net Press Run)*	2200	2200
B PAID CIRCULATION 1 SALES THROUGH DEALERS AND CARRIERS, STREET VENDORS AND COUNTER SALES		
2 MAIL SUBSCRIPTIONS	1767	1760
C TOTAL PAID CIRCULATION	1767	1760
D FREE DISTRIBUTION *(including samples)* BY MAIL, CARRIER OR OTHER MEANS	397	326
E TOTAL DISTRIBUTION *(Sum of C and D)*	2164	2086
F OFFICE USE, LEFT-OVER, UNACCOUNTED, SPOILED AFTER PRINTING	36	114
G TOTAL *(Sum of E & F—should equal net press run shown in A)*	2200	2200

I certify that the statements made by me above are correct and complete.

(Signature of editor, publisher, business manager, or owner)

Gregorio Díaz - Managing Editor

POD Form 3526 May 1968



A bad turn has changed his metabolism

B and C vitamins aid therapy: To meet increased metabolic demands, and as an aid to smoother convalescence and earlier rehabilitation, STRESSCAPS capsules offer therapeutic amounts of water-soluble B and C vitamins. In fractures, as in many other conditions of physiologic stress, STRESSCAPS vitamins are therapy.

Each capsule contains:

Vitamin B_1 (as Thiamine Mononitrate)	10 mg. (10 MDR)
Vitamin B_2 (Riboflavin)	10 mg. (8⅓ MDR)
Vitamin B_6 (Pyridoxine HCl)	2 mg.
Vitamin B_{12} Crystalline	4 mcgm.
Vitamin C (Ascorbic Acid)	300 mg. (10 MDR)
Niacinamide	100 mg. (10 MDR)
Calcium Pantothenate	20 mg.

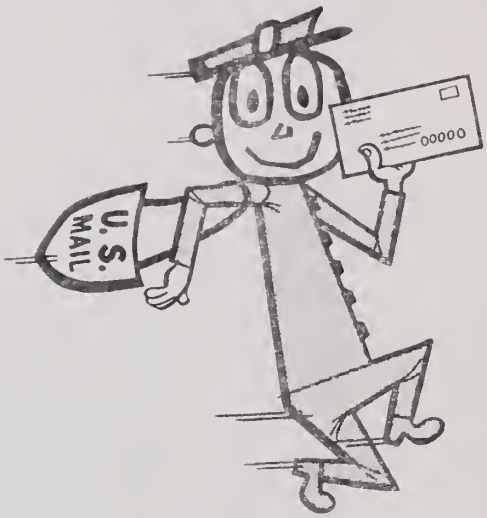
MDR—Adult Minimum Daily Requirement.
Recommended intake: Adults, 1 capsule daily for the treatment of vitamin deficiencies. Supplied in decorative "reminder" jars of 30 and 100.

STRESSCAPS®

Stress Formula B + C Vitamins Lederle

Lederle LEDERLE LABORATORIES, A Division of American Cyanamid Company, Pearl River, New York

424-9



Soy, Mr. ZIP. El período navideño que se acerca nos proporciona la gran oportunidad de culminar hacia la meta final de generalizar el imperativo uso de los números ZIP si es que realmente deseamos un verdadero servicio postal eficiente.

El número ZIP debe ponerse al final de la dirección, dejando no menos de 2, ni más de 6 espacios entre la última letra del Estado y el primer dígito del número ZIP. Si la última línea de la dirección resultare muy larga, el número ZIP deberá entonces ponerse, sólo, como última línea hacia el margen izquierdo de la dirección.

La razón de esto, es, para que el número ZIP se vea claramente y así se pueda distribuir más rápidamente la correspondencia, tanto a mano como por máquinas electrónicas, las cuales ya están operando en las oficinas de correos más importantes en los Estados Unidos, como son: Washington, D. C., New York, N. Y., Chicago, Ill., Los Angeles, California y otras.

Suplicamos a toda la ciudadanía usar siempre su número ZIP en la dirección de remitencia, pues es la forma más efectiva de generalizar el uso de los números ZIP, ya que así le provee al destinatario el número ZIP suyo, quién, al contestarle, indudablemente se inclinará a incluirlo en su dirección. Este procedimiento, como es natural, resulta mucho más fácil y conveniente, pues de otra manera tendríamos que consultar constantemente los directorios o llamar frecuentemente al correo.

Haga un hábito el uso del ZIP Code. *RECUERDE Y NO LO OLVIDE. "EL CORREO MUEVE LA NACION", "EL ZIP CODE MUEVE EL CORREO".* ¿Alguna otra información adicional?, pues no vacile en llamar al correo, Teléfono 765-6868, Extensión 233, y será debidamente atendido.

UNITED STATES POST OFFICE
SAN JUAN, PUERTO RICO 00936
September 25, 1969

RESUMENES DE TRABAJOS PRESENTADOS EN EL PROGRAMA CIENTIFICO

Management of Pulmonary Tuberculosis.

Robert L. Mayock, M. D., Pulmonary Disease Section, Department of Medicine, University of Pennsylvania, School of Medicine.

During the past 20 years major changes have occurred in the management of tuberculosis due in a large part to improved methods of therapy with chemotherapeutic agents. These changes have resulted in the cure of early cases of tuberculosis and have allowed more advanced cases to come under control so that surgery is possible. Drug therapy is the most important aspect in modern management and, if properly given, permits shorter hospitalization, earlier recovery and a decreased need for surgery.

Decreased number of institutional beds and a decrease in the number of physicians specializing in tuberculosis places the burden for care of these patients in the General Hospital and in the hands of the internist or general practitioner.

This presentation will review the physician responsibilities in the management of patients with tuberculosis. These responsibilities are to the patient, his family and the community. If recognized and assumed by the physician, all but the more complicated cases or patients with resistant organisms can be handled by the internist or general practitioner. Our only hope for eradication of this disease is through an educated and enthusiastic medical profession.

Disseminated Histoplasmosis - A Case Report.

Ramón E. Figueroa Lebrón, MD, Medical Service, Pulmonary Section, Veterans Administration Hospital

A 48-year old white male patient from Mayaguez was admitted to the VA Hospital in severe respiratory distress with marked cyanosis, high fever, shaking chills, hepatosplenomegaly and diffuse miliary infiltrate in both lungs.

The patient had been a healthy subject until 4 1/2 months prior to admission when general malaise, daily fever with chills, weight loss and jaundice appeared. He was referred to a private institution when treatment in his home town was of no avail.

The symptoms persisted and several weeks later a chest x-ray showed miliary infiltrate in both lungs. By this time the patient developed hepatosplenomegaly and liver function tests were moderately abnormal. Miliary Tbc and liver cirrhosis was entertained and he was transferred to another private institution where repeated PPD, sputum smears for AFB and scalene node biopsy were negative. The course was progressively downhill with increase in dyspnea and cyanosis. Daily spikes of fever (105°F) and shaking chills persisted throughout the course. Hematocrit and WBC remained normal and although liver function tests were abnormal jaundice progressively disappeared.

Eight days before death the patient was transferred to our institution. Continuous oxygen administration had to be provided to help cyanosis and dyspnea. Bone marrow aspirate for smears and culture were negative. Liver and lung biopsies were precluded due to patient's condition. Triple therapy and steroids were given for a couple of days and because of no improvement Amphotericin B was started but he died two days later.

Complement fixations were positive for histoplasmosis as well as cultures from lungs, adrenals and bones obtained postmortem. The causative organism was identified from histologic sections of organs affected.

There are no clear source of infection in this patient being a city dweller all his life and never having worked under environments known to be related to the organism.

Due to the rarity of similar cases reported from Puerto Rico we thought of interest to report this case, specially when this patient did not have any predisposing condition as the majority of cases reported in the literature.

The differential diagnosis and x-ray findings will be discussed.

Primary Pulmonary Cryptococcosis in Puerto Rico.

José L. Iturrino, MD, Dept. Surgery; A. Arzola, MD, Dept. Orthopedic Surgery and D. Jutzy, MD, Dept. Pathology, Bella Vista Hospital, Mayaguez, P. R.

A 60-year old white male developed back pain shown by X-rays to be due to three destroyed vertebral bodies (Te-Tio). After being evaluated elsewhere, he was treated with anti-TB chemotherapy for Potts disease. Several weeks later it was decided that such lesions represented metastatic destruction of the vertebrae. For this reason he was given Cobalt Therapy (2,500 R), after which treatment was terminated and he was discharged. Several weeks later he continued symptomatic. At this time a Right Thoracotomy was done, biopsy taken and cultures from a posterior mediastinal abscess were done revealing the growth of cryptococcus neoformans or Torula hystolitica. Treatment with Amphotericin B was given and he was discharged after about 6 weeks of hospitalization and treatment. Culture of pidgeon and goat feces kept at home were also done. The patient has been closely followed up and has remained asymptomatic for the last 3 years.

This is the first case, to our knowledge, of primary cryptococcosis (pulmonary) reported in Puerto Rico.

Hereditary Aspects of Pulmonary Emphysema-Alpha$_1$ Antitrypsin Deficiency.

Robert L. Mayock, MD., Pulmonary Disease Section, Department of Medicine, University of Pennsylvania, School of Medicine.

Patients with emphysema have been found more frequently in certain families, and is characterized by equal sex incidence, early age of onset and, often, absence of a smoking history. Two conditions associated with this phenomenon are Von Recklinghausen's disease and a deficiency in an antitrypsin found in the alpha$_1$ serum globulins.

Three patients from two families with the latter deficiency will be presented along with studies made on members of one of the families.

The implications of these findings will be discussed both for the patients and for the pulmonary emphysema.

Gram-Negative Rod Bacteremia - A Review of Fifty Male Patients.

Ramón H. Bermúdez, MD, Jesús H. Isern, BS, Luis López, MD and María M. Medina, MS., from the Department of Medicine, San Juan VA Hospital and the Dept. of Biostatistics, University of Puerto Rico School of Medicine.

Fifty cases of gram-negative rod bacteremia that occurred between July 1954 and June 1968 at San Patricio VA Hospital were reviewed with primary reference to mortality as related to associated diseases, clinical and laboratory features of the disease. It was found that an increased mortality could be related to the age of the patient, (with exception of the 16-35 year-old group), the presence, severity and duration of shock, the presence of oliguria and acidosis, and the acquisition of bacteremia while in the hospital. There was also a higher mortality in patients with bacteremia due to more than one organism.

The most common source of gram-negative rod bacteremia was the urinary tract and thus the importance of prevention of urinary tract infections is apparent. Treatment of patients with gram-negative rod bacteremia with appropriate antibiotics as determined by in Vitro sensitivities, significantly increased the survival rate. We were unable to demonstrate any beneficial effect from the use of adrenocortical steroids in treating gram-negative rod bacteremia in the dosage range of 50 to 300 mg. of hydrocortisone or its equivalent per day.

Allergic Reactions to Penicillins and Cephalothins in Patients with Hemagglutinating Penicillin Antibodies (HPA).

Lyndall Molthan, MD., Department of Medicine, Temple University Health Sciences Center, Philadelphia, Pennsylvania

Hemagglutinating antibodies (19 + 7S) have been found in the serum of 100 persons historically allergic to penicillins using test cells coated with cephalothin. Only 49 of these sera also reacted with test cells coated with penicillin-G. It is believed that cephalothin produces a more sensitive test cell because of its marked affinity for protein, red cell membrane protein in this situation. It is also believed that hemagglutinating penicillin antibodies consider cephalothins and penicillins as the same antigen.

Five patients historically allergic to penicillin and all having 19 + 7S HPA received penicillin: 3 had allergic reactions, one of which was fatal anaphylaxis. Seventeen patients historically allergic to penicillin and all having 19 + 7S HPA received cephalothin: 6 had allergic reactions, one of which was fatal anaphylaxis.

Thirty-three patients with negative history of penicillin allergy but all having 19 + 7S HPA received penicillin: 15 had allergic reactions which included 11 cases of hemolytic anemia. Twenty-eight patients with negative history of penicillin allergy but all having 19 + 7S HPA received cephalothin: 14 had allergic reactions which included 9 cases of hemo-

lytic anemia.

There were no allergic reactions to either penicillin or cephalothin in 59 patients whose sera contained either 19S HPA or no HPA.

Physiological Factors in the Treatment of Cor Pulmonale.

Robert L. Mayock, MD, Pulmonary Disease Section, Department of Medicine, University of Pennsylvania, School of Medicine.

Cor Pulmonale has long been regarded as one of the more difficult therapeutic problems in cardiac disease. However, responsiveness to therapy can be correlated with the reversability of the pulmonary aspects of the patient's disease. The characteristics of the pulmonary circulation will be reviewed with discussion of the expansability of the vascular bed, response to hypoxia, hypercarbia, serotoxia, endotoxins and acetyl choline. Newer information on directly reacting was opressive compounds from the lungs will be presented. Effects of changes in cardiac output, polycythemia, anoxemia, hypercarbia, acidosis and hypokalemia (all present in pulmonary disease at times) on myocardial performance will be discussed.

The pathophysiology of the above abnormalities in specific diseases will be reviewed along with the rationale for the indicated types of therapy.

Determination of the Incidence of Atypical Pseudocholinesterase in the Puerto Rican Population.

Carlos H. García, MD and Pedro M. Díaz, MD., Department of Surgery, Section of Anesthesiology, University of Puerto Rico School of Medicine.

Succinylcholine a commonly used depolarizing muscle relaxant is hydrolized in plasma by serum pseudocholinesterase. The esterase type is controlled by four genes probably allelic, being E_1^u the normal esterase. The others are E_1^a atypical esterase E_1^1 the fluoride resistant variant and E_1^s the silent gene in which there is no detectable activity of esterase. About 95 percent of the population carries the normal esterase, E_1^u E_1^u, 4 percent a mixture of both enzymes E_1^u E_1^a and about 1 in 3,000 (0.04 percent only the atypical esterase E_1^a E_1^a), In patients who carry the atypical esterase the administration of the relaxant succinylcholine is followed by prolonged apnea. In this study we propose to determine the incidence of this genetically linked abnormality in the Puerto Rican population using a rapid and simple method (Morrow and Motulsky) for the detection of the inherited type of atypical serum cholinesterase. The method detects both the homozygotes and heretozygotes for the gene determining the mutant atypical enzyme. Up to date the data so far shows that in Puerto Rico the incidence of the atypical gene is similar to that reported in other countries.

Adrenocortical, Thyroidal and Human Growth Hormone Reserve in Sheehan's Syndrome.

Lillian Haddock, MD, FACP, Luis A. Vega, MD, Francisco Aguiló, MD and Ovidio Rodríguez, MD., Department of Medicine, University of Puerto Rico School of Medicine, San Juan, Puerto Rico.

The endocrine function was thoroughly studied in a group of patients with Sheehan's syndrome.

HGH reserve was measured by immunoassay after insulin induced hypoglycemia and (or) Arginine infusion. ACTH reserve was measured indirectly by the response to Metyrapone, the adrenal reserve by the measurement of the daily excretion of the urinary 17-hydroxycorticosteroids and 17-ketosteroids before and after ACTH administration and the thyroid reserve by the measurement of the 24 hour Radioactive Iodine uptake and the PBI before and after TSH.

Of 42 subjects in whom the HGH reserve has been studied only one showed detectable HGH. The pituitary ACTH reserve was studied in 50 subjects. Only two patients, one with selective TSH deficiency and the other with selective gonadal insufficiency demonstrated a normal response. The adrenal reserve was studied in 50 subjects. Eleven of these subjects failed to show any adrenal reserve and responded as Addisonians. Two of these patients had selective ACTH deficiency. In these 11 non responders the ability to conserve sodium and secrete aldosterone upon sodium deprivation was found to be normal, thus ruling out primary adrenal insufficiency. No correlation was found between the duration of the illness and the adrenal reserve.

The thyroid reserve was assessed in 36 patients by measuring the Radioiodine iodine uptake before and after TSH. Three patients were clinically euthyroid and in 25 subjects with hypothyroidism the difference in the 24 hour Radioiodine uptake from the basal value ranged from 14 to 60 percent with a mean difference of 27 percent, a response as that seen in normals. The remaining 8 subjects had a response like that seen in primary hypothyroidism.

In 20 patients the PBI before and after TSH was

done. In eleven subjects an increase in the PBI of 1.1 to 3.2 mcg/100 ml. was shown while 9 subjects failed to show any appreciable increase.

The lack of thyroid reserve correlated better with the severity of the hypothyroidism rather than the duration of the illness.

Clinical Experience with Euthroid: A new Drug for Thyroid Replacement Therapy.

Francisco Aguiló Jr., MD, José R. Gándara, MD and Gabriel R. Martínez Rovira, MD.

The efficacy of Euthroid®, (a combination of thyroxine (T_4) and triiodothyronine (T_3) in a 4:1 ratio), on the induction or maintenance of a euthyroid state, was studied in a group of 30 hypothyroid patients, all but one of primary etiology. There were 20 females and 10 males with an age range 15-70 yrs. Eighteen (18) were previously untreated, while 12 were being treated. Only 4 were considered euthyroid at the onset of Euthroid® treatment, while severity of hypothyroidism on clinical basis was: severe in 12, moderately severe in 6, mild in 8.

A euthyroid state was achieved among the latter group within 1-8 months, with an average of 3 months, irrespective of initial severity. The dose most frequently rendering and (or) keeping the patient euthyroid was that containing 120 µg T_4 and 30 µg T_3, and which appeared roughly equivalent to 0.3 mg levo-thyroxine (l-T_4). Two patients who were unresponsive to usual doses of l-T_4 responded well to Euthroid. There was generally good agreement between clinical status and PBI plasma levels. In 6 patients in whom the comparison was made, average PBI levels were 2 ugm percent higher (8.0) while on l-T_4 treatment than while on Euthroid® (6.0 ugm percent).

The new preparation appears well tolerated, and seems to be a useful addition for replacement treatment in hypothyroidism.

Multiple Endocrine Adenopathy: Study of a Kindred.

Julio V. Rivera, MD, P. H. García-Pont, MD and Lillian Haddock, MD.

A patient will be described in whom multiple adenomas of the parathyroids, acromegaly with a pituitary tumor and diabetes mellitus concurred. Study of his family revealed the five other persons with probable disease of the parathyroids.

The literature on the syndrome of multiple endocrine adenopathy and familial hyperparathyroidism will be reviewed briefly.

Recent Advances in the Diagnosis and Treatment of Congenital Megacolon.

James L. Talbert, MD, Associate Professor of Surgery and Pediatrics; Chief, Division of Pediatric Surgery; University of Florida College of Medicine, Gainesville, Florida, 32601.

The anatomic deficit in Hirschsprung's disease has been clearly defined as an absence of ganglion cells in the affected bowel, but the pathophysiology of this condition and the resultant disturbances of sphincteric function have continued to be poorly understood. The lack of a reliable index of sphincteric function has limited preoperative evaluation and has produced inconsistencies in the postoperative assessment of fecal continence in these cases. Although a significant number of postoperative patients develop either recurrent constipation or fecal incontinence, a clear method for avoiding these surgical failures could not be defined by previous investigative techniques.

In view of these deficiencies, a new approach for investigation of the pathophysiology of congenital megacolon has been developed, utilizing differential manometric and electromyographic recordings for the quantitative measurement of both internal and external ano-sphincteric action. Information provided by this approach has not only allowed preoperative diagnosis of congenital megacolon by nonoperative needs (avoiding the need for rectal biopsy) but has also suggested important surgical innovations which have significantly improved the operative results in this condition.

A description of the technique of differential sphincteric, manometric, and electromyographic recording will be presented, together with clinical documentation of the value of such studies in the diagnosis and management of congenital megacolon and the contribution of these observations to the development of a new operative approach for surgical correction of this condition.

Acute Effect of Intravenous Diuretic Therapy in Patients with Ascites due to Hepatic Cirrhosis

Eliseo C. Pérez-Stable, Barry J. Materson and David L. Sugerman, Department of Medicine, University of Miami School of Medicine, and VA Hospital, Miami, Florida.

The acute effect of intravenous Ethacrynic Acid (EA) has been studied in human volunteers. However, since therapeutic application is intended for patients with fluid retention and since renal function

is abnormal in edematous states, we have undertaken this investigation to characterize the renal response to EA in cirrhotic patients. After equilibration and collection of urine for controls, eight patients received 100 mgs of EA intravenously. Urine was collected at 30 min periods until the diuresis abated and then at four hour intervals for the remainder of the 24 hour period. During the diuresis, renal function studies disclosed a fall in tubular reabsorption of water, sodium and chloride. These findings are compatible with a blockade of the tubular coupled sodium chloride reabsorption. However, a definite increase in renal plasma flow after EA suggests a redistribution of blood flow to the outer cortical nephrons as contributing significantly to EA's mode of action. Results of the control periods versus the period showing peak excretion are recorded below:

	Control	Diuresis
PAH clearance (ml/min)	355	455
Inulin clearance (ml/min)	70	72
Urine flow (ml/min)	.48	15
Osmolar clearance	1.11	13
Na excretion (uEq/min)	4.9	1386
K excretion (uEq/min)	36.4	317
Cl excretion (uEq/min)	17.1	1739
Mg excretion (uEq/min)	7.1	47

Of great clinical importance is the finding of marked losses of chloride, which indicates the need to give an excess of chloride over potassium in a replacement therapy intended to prevent the metabolic alkalosis observed after the use of EA. We now use a special electrolyte solution based on the above data for the replacement of electrolytes lost in the urine during diuresis. This replacement solution has permitted safe, rapid and massive diuresis of patients with ascites due to cirrhosis of the liver.

Evaluation of Dichlorvos as Single Dose Intestinal Antihelmintic Therapy for Man.

W. A. Cervoni, J. Oliver-González, S. Kaye, and M. B. Slomka, School of Medicine, University of Puerto Rico, San Juan, and Shell Chemical Company, New York.

The most widespread of the helminths affecting man are the soil-transmitted intestinal worms, *Ascaris lumbricoides, Necator americanus, Ancylostoma duodenale* and *Trichuris trichiura.* Heavy parasitosis with these worms cause a variety of clinical manifestations and as endemic infections, have a direct bearing on morbidity with great economic consequences. At present *Trichuris trichiura* is one of the important pediatric problems with no adequate chemotherapeutic agents to eliminate the worms. Although chemotherapeutic agents are available for ascaris and hookworm infections, they are fairly specific in their activities and are not without some incidence of side effects. No agent is available with a significant therapeutic effect on these four species of roundworms.

The effectiveness of the dichlorvos formulations (ATGARD(R), TASK (R), and EQUIGARD*) as broad spectrum antihelmintic preparations for the treatment of multiple roundworm infections in a variety of animal hosts suggested the evaluation of an appropriate formulation in man.

Materials and Methods

Antihelmintic studies were carried out in 717 adult humans found to be harboring 1372 infections of hookworm, whipworm and/or ascaris. Our paper presents the results obtained with dichlorvos therapy in these cases.

Factors Associated with the Development of Cancer of the Esophagus in Puerto Rico.

Isidro Martínez, MD, Director, Cancer Central Registry, Department of Health, Santurce, Puerto Rico.

A case-control community-based study of 400 cases of cancer of the esophagus, mouth, and pharynx was undertaken to explore the association of environmental and dietetic factors and family aggregation. Twelve hundred age-sex-matched controls were interviewed with the same questionnaire used for cancer cases.

A nutritional deficiency for fresh fruits, vegetables, meat, eggs, and milk, and a high consumption of carbohydrates in the form of beans, rice, bread, potatoes, sweet potatoes and other starchy roots was found in both cases and controls.

Significant differences between cancer cases and controls were found for heavy consumption of alcohol, heavy use of tobacco, heavy consumption of hot beverages (mostly coffee), irregularity of meals, heavy consumption of spices, reduced number of meals during the day, absence of liquid during meals, reduced amount of food and preference for very hot meals.

Exchange Transfusion in the Treatment of Acute Hepatitis with Coma.

Rafael A. Rivera, MAJ MC, Robert L. Slaughter, MAJ MC, and H. Worth Boyce, Jr., LTC MC., Gastroenterology

---

* *Shell Trademark*

Service, Walter Reed General Hospital.

Acute hepatic necrosis with coma carries an extremely ominous prognosis. Conventional therapy has had little influence on recovery rate. Various therapeutic modalities are currently being tried. Survival figures derived from a compilation of reports on exchange transfusion as a mode of therapy are somewhat encouraging when compared to the salvage rate in fulminant hepatitis treated conventionally even after the addition of steroids. Current knowledge is lacking as to the specific lethal factor(s) and/or mechanism(s) in these patients. Pathogenetic ignorance, notwithstanding the remarkable regenerative power of the liver dictates that all efforts be made to sustain life, hopefully awaiting functional recovery. If facilities and personnel are available we feel exchange transfusion should be considered when 24 hours of intensive conventional therapy, to include high dose steroids, fails to bring about significant improvement. The duration of therapy in the absence of neurologic improvement remains arbitrary. Histologic evidence of liver cell regeneration, if obtainable, may be evidence to justify further therapeutic efforts.

Proper assessment of the value of exchange transfusion as a mode of therapy will require a cooperative approach.

The Hematologic Response of Tropical Sprue to Oxytetracycline and Poorly Absorbed Sulfonamides.

E. O. Horta, N. Maldonado, J. Fradera and R. Santini, Jr., Department of Medicine, UPR School of Medicine, San Juan, P. R.

Treatment of tropical sprue with either folic acid and vitamin B-12, or both, has been recognized as dramatical. The response is obtained within the first two weeks of therapy with amelioration of symptoms and regression of the megaloblastosis to normal erythropoiesis in most instances.

Although antibacterial agents do not produce a fast clinical and hematologic remission, they have been found highly effective in the treatment of tropical sprue. The present study deals with the hematologic response obtained in 7 patients with tropical sprue who were treated only with sulfasuxidine and 4 treated with oxytetracycline. An initial reticulocytosis of over 6 percent was observed within the first 3 to 33 days and the peak reticulocyte response occurred during the 2nd to the 7th week of treatment. A definite rise in hemoglobin occurred after the 4th week of therapy in all patients, but one. Serum B-12 levels were low in 10 patients and at the time of the hematologic response it was normal in 2 patients, significantly increase in 6, and improved in 2. The serum folic acid was low in 9 patients and during the rise in hemoglobin it remained low in all of them. The xylose absorption test was abnormal in all patients and at the time of the response it returned to normal in 8 patients and improved in 2. Improvement in the jejunal lesion was observed in all patients when the response occurred. Pre-treatment bone marrow studies showed variable degrees of megaloblastosis which became normoblastic in 2 patients and improved in the remaining ones when the response was observed. The results of our studies clearly demonstrate that poorly absorbed sulfonamides and oxytetracycline are effective in inducing hematologic responses in untreated patients with tropical sprue.

Nutrition Survey of Two Rural Puerto Rican Areas Before and After a Community Improvement Program.

Nelson A. Fernández, MD, José C. Burgos, MD and Conrado F. Asenjo, PhD.

Two rural Puerto Rican communities were surveyed in 1963 and 1967 in order to evaluate the nutritional changes occurred in their population after the administration of a government community improvement program. The survey included the collection of dietary, clinical, and biochemical data. Stools were examined for ova and parasites. Surveys carried out in 1963 had shown that the diet was basically deficient in calories, vitamin A, riboflavin and calcium. There were few clinical signs associated with deficiency diseases. The most revealing clinical finding was retardation of growth. The main biochemical deficiencies were Vitamin A, riboflavin and niacin. Stools showed a considerable prevalence of intestinal helminthiasis.

Between 1963 and 1967 the government Commission for the Improvement of Isolated Communities carried out an improvement program in these areas which included permanent works and general education of the people.

In 1967 one of the areas showed improvement of the diet except in animal protein, calcium, and Vitamin C. The other community showed a general deterioration of the diet. Clinically, an increase in the skinfold thicknesses was observed in all age groups, and in the weight of adults. No significant changes in height and weight were found in children and adolescents. Adult prevalence of arterial hypertension also

increased. The hematologic findings and the plasma levels of carotene, Vitamin A, and ascorbic acid showed improvement. However, a higher prevalence of low-deficient plasma protein values was observed. The urinary excretions of B vitamins showed slight improvement for thiamine and very little change for riboflavin. N-methylnicotinamide excretions improved in one area and showed a larger number of low values in the other.

In view of the results of these surveys it is concluded that better coordination and more intensive nutrition education are necessary to correct the existing nutrition problems and to avoid further deterioration of the nutritional status.

Gonadal Exposure Dose from Medical Diagnostic X-Ray Examinations in the Western Region of Puerto Rico - 1967.

Jorge Carrera-Giral, MD, X-Ray Diagnostic Center, Mayaguez, Puerto Rico, and Michael Gileadi, MS, Health Physics Division, Puerto Rico Nuclear Center, Mayaguez, Puerto Rico.

Consideration is given to the radiation exposure dose received by the population during some selected X-Ray diagnostic examinations. The study is the first one of its kind in Puerto Rico, and is based on statistical data compiled during 1967 in the Western region of Puerto Rico by one of the authors. These statistical data are presented graphically in the paper.

The authors are concerned about the philosophy of radiation protection, and discuss the genetically significant dose. Recommendations are made that will minimize the hazards to patients and operating personnel of the medical radiation-diagnostic units. This involves such protection factors as: (1) Suitable filtration, (2) Collimation of the beam, (3) Correct field size of the beams, (4) Adequate target-film distance (TFD), and (5) Proper shielding of the gonads, etc.

Consideration is also given to the possible role of the government and to the voluntary change in attitude of the physicians towards the control of these hazards.

Clinical Evaluation of 75-Selinium-Methionine Scan as a Diagnostic Agent in Lymphomas.

N. E. Herrera, MD, FASCP, FCAP, MSNM: Director of Laboratories, Danbury Hospital, Danbury, Connecticut; Assistant Clinical Professor Pathology, Yale University School of Medicine, New Haven, Connecticut.

Purpose: To study the clinical usefulness of 75-Se-Leno-Methionine Scanning in the diagnosis of malignant lymphomas.

Method: Whole body scans at 30 minutes, 24 and 48 hours after administration of 4uCi/Kg body weight utilizing a rectilinear scanner as described by Herrera *et al*, JNM 6:792;804, 1965 and Spencer *et al* JNM 8: 197, 1967.

Material: 47 patients had a total of 58 scans performed. 30 patients had lymphoma (Hodgkin's disease, lymphosarcoma, reticulum cell sarcoma) and 18 patients had non-lymphomatous tumors. Diagnoses were proven by biopsy or other acceptable method in all cases.

Results: Group I (lymphoma) 30 patients, 41 scans, 27 patients had positive scans sometime during their course. 16 patients were scanned prior to therapy and all scans were positive. 21 scans were done in patients with clinical evidence of relapse, 14 were positive and 6 were negative. 3 scans done during clinical remission were negative. Group 2 (non-lymphomatous tumors including carcinomas, sarcomas, granulomatous and other miscellaneous conditions) 17 patients, 17 scans, 14 were negative, 3 patients had positive scans, 1 thyroid carcinoma, 1 abdominal fibrosarcoma and 1 reactive lymphadenitis.

Disseminated M. Kansasi Infection in a Patient with Chronic Granulocytic Leukemia - Report of a Case.

Antonio J. Grillo-López, MD, Ezequiel Rivera, MD, Norman Maldonado, MD, Department of Medicine, UPR School of Medicine, San Juan, Puerto Rico.

Atypical mycobacteria are classified into four groups. Group I, the photochromogens, produce a yellow pigment on exposure to light. Group II, the scotochromogens, produce a yellow pigment in the dark. Group III, the nonchromogens, produce no pigment. Group IV may or may not produce pigment but is characterized by rapid growth ("Rapid Growers"). All can produce disease in humans which is most frequently pulmonary but may affect lymph nodes, bone, meninges, and other organs. The clinical picture may be undistinguishable from disease caused by M. hominis. Disseminated disease is infrequent and we have been able to find only 21 such cases in the literature. A case of disseminated disease caused by M. kansasi, a group I organism, in a patient with Chronic Granulocytic Leukemia is the object of this report. The clinical and laboratory features of these cases are reviewed. The frequent occurrence of tuberculosis in patients with CGL is presented.

The pathophysiologic significance of the defective stem cell concept in the concurrence of these conditions is discussed.

Immunosuppresive Therapy in the Management of Chronic Renal Disease-Preliminary Report

H. Morales Castañer, R. Burgos Calderón, R. Ramírez-González and R. Rodríguez Estapé.

The use of drugs with the purpose of blocking the immunologic mechanism involved in the pathogenesis of chronic renal disease has been experimentally and clinically tried for years. Since 1960 great experimental effort has been devoted to the investigation of the effects of Azathioprine on chronic renal disease of various types. The results so far have been highly inconclusive and controversial.

We present our own experience with the use of steroids given in low dosage on alternate days and Azathioprine given daily in the highest tolerable dose on the survival and renal function of a group of patients with biopsy proven chronic renal disease.

Clinical Value of Serum Renin Determination in Hypertension.

José L. Cangiano, MD

The renin-angiotensin system is involved not only in maintaining sodium and water homeostasis, but is implicated in the pathogenesis of certain conditions associated with hypertension. By using serum renin determinations by the bioassay method of Gould *et al*, we have undertaken several studies in an attempt to elucidate the role of this system in hypertensive conditions such as essential hypertension, unilateral renal hypertension, end-stage renal disease, malignant hypertension and primary aldosteronism. When compared to normal subjects, patients with essential hypertension have shown normal or decreased random renin values. On the other hand, patients with significant unilateral arterial or parenchymal disease and malignant hypertension have shown increased levels. Analysis of 10 hypertensive patients in whom surgery was performed for unilateral renal disease showed 4 cured (Group I) and 6 without any improvement (Group II) after follow-up periods of 6 to 56 months. The correlation of separate renal function test (Stamey) and bilateral renal vein renin (RVR) with results of surgery was evaluated. Group I showed a significant disparity of RVR (affected kidney, 9.64 Goldblatt units (G.U.) $x10^{-4}$/ml; normal kidney, 2.43 G.U. x 10^{-4}/ml; ratio 4.14; Stamey test was abnormal in 3 patients. Group II showed no significant disparity of RVR (affected kidney 0.26 G. U. $x10^{-4}$/ml; normal kidney 0.37 G. U. $x10^{-4}$/ml; ratio, 0.86); Stamey test was abnormal in 2 patients. The renal plasma flow in the contralateral kidney in Group I ranged from 180 to 439 ml/min and in Group II from 46 to 357 ml/min. These studies suggest that bilateral RVR is the best available index of surgically correctable renal hypertension in those patients with demonstrable lesions.

Diagnostic evaluation of 48 randomly selected untreated normokalemic hypertensive patients for primary aldosteronism was performed in a Metabolic Unit. Supine and 4 hour upright serum renin after 5 days of sodium restriction (10 meq of sodium a day) and aldosterone excretion after 5 days of sodium loading (200 meq of sodium a day) and 3 additional days of DOCA administration (20 mg a day) were measured. Renin concentration levels disclosed 6 low responders (0.15 G. U. $x10^{-4}$/ml) and 42 normal responders. Aldosterone excretion values suppressed to normal in all but 5 patients. These 5 patients suppressed normally with DOCA. In addition, there was no crossover between the increased aldosterone patients and low renin responders. This study suggests that the incidence of primary aldosteronism in a normokalemic hypertensive population must be exceedingly low. In addition, the use of renin unresponsiveness as an indication of primary aldosteronism must be carefully evaluated since in our series 12 percent were low responders but demonstrated normal aldosterone excretion. Finally, it implies that mechanisms other than primary aldosteronism suppress renin activity.

These studies demonstrate that serum renin determination is of exceptional value in the diagnosis and treatment of hypertensive disease. The findings in patients with essential hypertension emphasize the need for further investigative work.

Home and Center Hemodialysis Programs and Renal Transplantation.

Osvaldo Ramírez-Muxó, MD, Nephrologist, San Juan VA Hospital.

A critical review of current programs and available statistics will be presented. Present philosophy and future expectations will be discussed. Application of such programs to Puerto Rico will be evaluated.

There are more than 30,000 uremic patients dying of this disease every year in the United States. It is estimated that 450 to 550 patients die in Puerto Rico of uremia. Only one fifth of them are believed

to be suitable candidates for the more aggresive therapeutic approach; however, there will be facilities for only 2200 patients at the end of 1970. In order to cope with the increasing demand for nephrology services several alternatives have been proposed. The USPHS is founding small demonstration centers where patients are taught how to dialyze themselves at home and thus reduce the cost of the treatment. The Veterans Administration is planning to build 44 hemodialysis centers of 8 to 10 beds each. There are plans to expand a pilot program of home hemodialyzers. In our new facilities at San Juan we will have 10 beds with equipment designed to accept as soon as available newer types of dialyzers presently under development.

Transplantation programs are being expanded to incorporate newer tissue typing technics and recipient pool system. Organ preservation and transportation is receiving ample evaluation with promising results. A uniform anatomical gift act is being enacted and approved by an increasing number of states which should make organs available more readily. Related living donor continues to lead the survival rates in transplantation. Cadaver transplantation should be considered an experimental procedure until the survival rates match those of hemodialysis on living donor transplantation.

Our VA hospital is planning to undertake a transplantation program according to the Veterans Administration guidelines and hopes to participate in the organ harvest system of southeastern United States.

Reversible Uremia in Patients with Chronic Renal Disease - Presentation of Cases

H. Morales-Castañer, R. Burgos-Calderón, R. Ramírez-González, and R. Rodríguez-Estapé.

Uremia is considered one of the most serious of all medical conditions, almost universally fatal. With the advent of the different forms of dialysis and of renal transplantation, some hope of survival for an undetermined number of years can be offered to some of these patients. Such facilities are available for only a few of the many needed of such therapy, so still we have to deal medically with the majority of the uremic patients, specially those suffering from chronic renal disease.

At our Chronic Dialysis Unit of the UDH, we receive a great number of severely uremic patients for dialysis. Many of them have been managed medically with success. Various such examples, stressing the importance of an adequate diet, adequate use of salt, diuretics, antibiotics, antiacids, hematinics, water, etc., will be presented.

We want to stress the point that not all the chronic uremics are beyond help, many of them can be lead to a useful and productive life for an undetermined time without the need of dialysis and/or transplantation.

The Measurement of Glomerular Filtration Rate without Urine Collection or Repeated Blood Sampling.

José L. Cangiano, MD

The measurement of glomerular filtration rate (GFR) is of exceptional value in the diagnosis and follow up of patients with renal disease. The methods heretofore employed have been fraught with many difficulties. For example, inulin clearance is not clinically applicable since it requires constant-rate intravenous infusion, accurate urine collections and a difficult chemical estimation. Similarly, the use of creatinine or urea clearances have notoriously been unreliable because of poor urine collection or poor urine flow. Although bladder catheterization has been employed to obtain more reliable results, it is well known that this procedure might introduce urinary infection and have detrimental effects. In order to avoid these problems, external monitoring of the plasma disappearance after a single injection of 50 to 100 uc of iothalamate I 125 (glofil) was used to measure GFR in 40 patients with renal function ranging from zero (anephric) to normal values. After a background sample, external monitor counts were obtained with an external scintillation counter with a 2 in. diameter sodium iodide crystal placed over the heart. The counter was connected through a ratemeter and amplifier to a recorder, which was set to record the counts every 2 minutes for a period of 220 minutes. The external monitor counts were then compared to plasma counts obtained during a period of 220 minutes and to 2 simultaneous catheterized clearance of one hour period each. The period of plasma equilibration of the isotope was found to be between 90 to 120 minutes. The results of the external counting method plotted against the observed creatinine clearances and plasma counts in each patient showed a highly significant correlation ($p < 0.001$). The mean ratio of creatinine clearances to monitor clearance was 1.02.

These studies demonstrate that external counting of iothalamate I 125 is a clinically useful, accurate and simple means of measuring GFR throughout the range of glomerular filtration. Moreover, its use

avoids the need for catheterization, constant-rate infusions and urine or repeated blood collection.

Complications of Peritoneal Dialysis

Carlos A. Vaamonde, M. D., Department of Medicine, University of Miami School of Medicine and Nephrology Section, Medical Service, Miami VA Hospital Miami, Florida.

An analysis was made of the complications of peritoneal dialysis encountered during 164 dialyses in 95 severely ill patients at a teaching hospital where the major responsibility for the dialyses rests outside a specialized renal unit. Except for 18 dialyses in 3 patients awaiting renal transplantation none of the patients underwent chronic peritoneal dialysis. Patient diagnoses included: acute poisoning (7); congestive heart failure (2); acute renal failure (19) and acute decompensation of chronic renal disease (67). Mean duration of dialyses was 40 hours.

Complications encountered were as follows: MECHANICAL: pain; intraabdominal hemorrhage, minimal, moderate, severe; leakage of fluid; inadequate drainage; intraperitoneal catheter loss; wound evisceration. PULMONARY: aspiration of gastric contents; basal atelectasis; pneumonia; pleural effusion. CARDIOVASCULAR: pulmonary edema, fluid overload, hypovolemia, digitalis intoxication, cardiac arrest. NEUROLOGICAL: mental deterioration; convulsions without apparent cause during or within 36 hours after dialysis. METABOLIC: hyperglycemic coma; hypoglycemia; hyper and hypokalemia; hyper and hyponatremia, metabolic alkalosis. INFECTIOUS: local abscess. Positive bath cultures were obtained in 28 of 122 (23 percent) dialyses. Clinical peritonitis dialyses related were observed in 5 percent of the dialyses.

In 34 percent no or only minimal complications occurred. Significant clinical improvement followed 72 percent of the dialyses in spite of the high incidence of complications. Death occurred during 19 (12 percent) of the dialyses and was considered to be the direct result of a complication in 6 (3.7 percent): aspiration (3), penumonia (2), cardiac arrest (1).

While it is clear that peritoneal dialysis carried definite risk, with meticulous care most of the complications are preventable and the risks of dialysis need to be weighed against the clinical situation at hand. Peritoneal dialysis will be safe and useful to the patient only with appropriate knowledge of the dynamics of the method and of the potential morbidity associated with its use.

Chronic Peritoneal Dialysis Program in the San Juan VA Hospital.

Osvaldo Ramírez-Muxó, MD, Nephrologist, San Juan VA Hospital.

Six male patients have been successfully dialyzed peritoneally for over a year. A seventh patient was discontinued from the program after he developed vasomotor and cerebral complications. Each patient was dialyzed once a week. Ages range from 32 to 56 years. Two patients have severe disabling peripheral neuropathy, sensorial and motor. Nerve conduction studies and electromyography have been done. One patient is doing surprisingly well despite repeated dietary indiscretions. Three patients are in good condition. Urea nitrogen and serum creatinine levels are running higher than comparable patients in hemodialysis. All patients felt better after increasing dietary protein to 60 gm per day. One patient requires the reinfusion of ascitic fluid accumulated between dialysis in order to prevent excessive protein loss.

The relatively simple procedure making possible the fast training of personnel and the availability of disposable equipment, should encourage a wider use of this therapeutic modality.

Experience with One Thousand Dialysis at the University Hospital.

H. Morales Castañer, R. Burgos Calderón, R. Ramírez González and R. Rodríguez Estapé.

The University District Hospital acquired an artificial kidney in 1962, which was used mainly in the management of cases of acute renal failure and intoxications with dializable poisons. We lack a record of the dialysis performed between 1962 and 1965.

From 1965 on the statistics are as follows:

	Hemodialysis	Peritoneal Dialysis
1965-66	33	20
1966-67	73	27
1967-68	210	30
1968-69	540	46
1969-70	86	2

The increment in hemodialysis from 1967 on is due to a program of chronic dialysis started that year. At the present we carry 7 patients on such a chronic dialysis program (14 hemodialysis weekly) with a survival of up to 2 years.

Data regarding all the patients dialyzed due to acute renal conditions, acute intoxications, chronic C-V conditions and specially laboratory and clinical

data regarding the 7 patients on a chronic twice a week dialysis program will be presented. The 1000th dialysis was performed on July 2, 1969.

Experience with the Follow-Up of Renal Transplants in Puerto Rico

H. Morales Castañer, R. Burgos Calderón, R. Ramírez González and R. Rodríguez Estapé.

During the last 3 1/2 years we have followed 4 patients with renal transplants at the Renal Unit of the University District Hospital. These transplants were performed at the U. S., were discharged promptly from the respective transplant centers at the U. S. and referred back to us for follow up. All the data referring to immunosuppresive therapy, renal function, metabolic studies, and complications, including rejection reactions, will be presented. Their present state of well being and usefulness will be stressed. The necropsy findings of the only death we have had so far will also be presented.

A Double Blind Controlled Clinical Trial of D-Thyroxine on Euthyroid Coronary Subjects.

Elí A. Ramírez, MD and P. H. García Pont, MD

Seventy one patients who have sustained one or more definite myocardial infarctions were given daily either 4 mg of D-Thyroxine (DT-4) or its placebo. A double blind envelope design was used. Thirty eight patients were assigned to the placebo regime and 33 to the DT-4 regime. All except four patients in each group have reached either a terminating event or completed five years of treatment. There have been 14 terminating events in the placebo treated group and 8 in the DT-4 treated group. There were two deaths due to infarction and one sudden death in the placebo group, and 4 deaths due to infarction in the DT-4 group. There have been 13 drop outs. The principal drop out cause was death due to other than heart disease. Significant effects observed in the DT-4 group included decrease in serum cholesterol, decrease in Beta-lipoproteins, decrease in I_{131} uptake, and increase in RBC-T_3 uptake. The DT-4 treated group have shown a significant increase in the incidence of side effects. Statistical analysis indicates that in the dosage employed this drug has not affected significantly the morbidity and mortality of the subjects.

Obturator Bypass for Mycotic Aneurysm in the Narcotic Addict

S. H. Fromm, MD.

Five cases of infected pseudoaneurysms of the femoral artery in "mainline" heroin addicts were seen at Detroit General Hospital from January to December 1968. Two patients presented with rupture of the aneurysm and massive bleeding requiring emergency ligation of the femoral artery. One of these required subsequent amputation, the other had a successful Obturator bypass graft done at a later date. Three patients had the diagnosis made before rupture and underwent semielective bypass grafts through the Obturator foramen, and in two cases a 48 hours delayed resection of the aneurysms. One patient had a thrombosis of the graft 12 months later, but this was successfully handled by a second graft brought through the now healed inguinal region. Preoperative management and operative technique will be discussed.

Knee Arthrography.

Luis E. Bonnet, MD

The diagnosis of internal derangement of the knee is frequently very difficult with conventional techniques. Many times, the classical findings are absent. Some of these cases may require surgery, some do not. It is, therefore, extremely important to utilize all the possible means to establish the nature and location of the lesions for an adequate treatment. Knee arthrography has been proven to be a very useful, reliable and safe procedure to confirm the presence of an internal derangement of the knee. It should be routinely used in all cases of suspected tears of the meniscus, cruciates or collateral ligaments, Baker's cysts, Villonodular synovitis and any case in which the clinical findings are equivocal. All the cases in which surgery is contemplated should ideally be preceded by arthrography.

The experience in over 100 cases and 40 arthrotomies is the basis of this presentation.

A Program for the Improvement of Clinical Laboratory Services.

Agustín Cajigas Picó, MD, María H. Costa Mandry, BS, MT, and Angel Alberto Colón, MD, DSc, Institute of Health Laboratories, P. R. Health Department.

The clinical laboratory improvement program offered by the Institute of Health Laboratories has produced data for the past 15 years that reveal serious deficiencies in the results of clinical analyses. This corroborates the findings of many investigators in this field. Our current improvement program includes sending out samples of known composition in several categories such as Clinical Chemistry, Bacteriology,

Parasitology, Serology, Hematology and Blood Banking. A notable island-wide improvement in the quality of the work performed in Clinical Laboratories has taken place in the last three years as evidenced by the results on the Proficiency Samples sent to them. Surprisingly enough, relatively simple and well-standardized determinations such as hemoglobin and total proteins were found to be areas of unsatisfactory laboratory performance. As a result of this improvement program these and other areas of clinical analysis have shown remarkable improvement in the last few years.

Recent Advances in Ovulation Control

Bernard A. Eskin, MD, FACOG.

Recently several therapeutic regimens for ovulation induction and maintenance of the conceptus have been introduced. These consist of hypophysotrophic, gonadotrophic, and ovarian hormones which have proven efficacious in specific infertility problems.

Personal clinical experience with clomiphene citrate, human menopausal gonadotrophin, chorionic gonadotrophin, and releasing factors will be presented as they may be used in female infertility treatment.

Preliminary Investigation of Fertility Control with Norgestrel in Continuous Daily Microdoses

A. Hernández Torres

Two hundred forty-four Puerto Rican women less than 36 years old, of proved fertility and regularly engaging in cohabitation, received norgestrel continuously, in daily doses of 75 micrograms, for one to 15 cycles (a total of 1603 cycles), with an average of 7 cycles per patient. Although cycle length was irregular, the flow was of average volume in 92 percent of total cycles, duration of bleeding averaged 5 days, and the range of the cycle averaged 28 days.

One unplanned pregnancy occurred, apparently the result of method failure; if confirmed, this represents a method failure rate of 0.7 per 100 woman-years. Patient failure accounted for 2 additional conceptions. These brings the use-effectiveness rate to 2.2 per 100 woman-years.

Irregularities of the cycle were the principal untoward effects of medication. (Breakthrough bleeding occurred in 19 percent, spotting in 5 percent and amenorrhea in 1.2 percent of total cycles). Other side effects were rare.

Ninety-three percent of the patients found the treatment acceptable, and most considered the regimen ease to follow. They regarded the menstrual cycle deviations as of little or no consequence.

This study is continuing.

Further Studies on Perfusion Abnormalities in Women on Oral Contraceptives Using Serial Lung Scans.

N. E. Herrera, MD, FASCP, FCAP, MSNM; Director of Laboratories, Danbury Hospital, Danbury, Connecticut; Assistant Clinical Professor Pathology, Yale University School of Medicine, New Haven, Connecticut.

Purpose: Study of usefulness of pulmonary scanning in the discovery and follow-up of pulmonary emboli in women during oral contraceptive administration.

Methods: Agent: 131 Macroaggregated Human Serum Albumin. Instrumentation: Rectilinear Scanners.

Results: The study comprises 78 symptomatic women on oral contraceptives and 41 symptomatic women in the control group studies over a period of two years by means of pulmonary scans and chest x-rays. Study and control groups were age and symptom paired. Forty percent of patients on contraceptives had abnormalities in perfusion classified as pulmonary emboli clinically and on the basis of scan. Only 20 percent of the control group had similar findings.

Correlation with pulmonary angiography was obtained in a limited number of cases. Differences in age distribution and evolution of the process in the two groups were demonstrated.

Conclusion: 1. Serial pulmonary scanning is a useful tool in the diagnosis and study of pulmonary emboli occurring as a result of oral contraception. 2. The incidence of such complication is rather high in women who become symptomatic while on the contraceptives.

Experience with Cendehill Strain Live Attenuated Rubella Vaccine in Puerto Rico.

Jorge E. Corretjer, MD and José Oliver González, MD, from the Department of Medical Zoology, School of Medicine of the University of P. R.

Several studies designed to evaluate different aspects of the Cendehill Strain attenuated rubella vaccine have been carried out in Puerto Rico during the last 18 months. A brief summary of the work done follows: *Family Study.* Sixty four acceptable families were involved containing 70 seronegative vaccines, All the vaccines sero-converted. None of the 133 susceptible contacts converted. *Adult Female.* A total of 145 seronegative and 122 seropositive women from

the P. R. Medical Center School of Nursing were vaccinated. The sero-conversion was 99 percent. Post vaccination reactions were recorded and evaluated. *Double Blind Study.* Thirty-eight seronegative women were vaccinated, and 48 sero-negative served as placebo controls. The study also included sero-positive vaccines and placebos. *Serological Status outside of San Juan Metropolitan Area.* One hundred and fifty women from the prenatal clinics in Ponce, Ponce Playa, Coamo and Utuado were bled. Immunological status of these women will be discussed: *Open Trials:* (A)Two thousand children from the Río Piedras area were screened for rubella anti-bodies; 626 seronegative were vaccinated. Ninety two seronegative subjects served as placebo. (B) Presently a study involving 10,000 children from the San Juan Metropolitan Area elementary schools is being conducted. It includes vaccinated, placebos, and vaccinated and non-vaccinated controls. Evaluation from these studies, including immunogenic response, toleration, infectivity, sero-conversion rate, side effects, etc., and evaluation of seronegativity among puertorricans will be presented.

The Normal Electrocardiogram in Pregnancy.

Francisco X. Veray, Department of Obstetrics and Gynecology and Medicine, University of Puerto Rico, School of Medicine.

We have reviewed a series of ECG from the first, second and third trimester of pregnancy as well as post partum and reviewed findings in axis, ST-T wave changes, as well as a series of arrhythmias commonly seen in pregnancy. Our data compares with findings of Hurnt, Burch in the world literature. The importance of our cardiologists to know these changes is stressed for the benefit of our pregnant normal population.

The Clinical Value of Fetal Electrocardiography, Phonocardiography, and Heart Rate Monitoring.

Robert L. Lambert, MD, Edith Millican, MD, John R. Urbach, MD, Elsie R. Carrington, MD, Departments of Medicine & Obstetrics & Gynecology, Hospital of the Woman's Medical College of Pennsylvania.

Fetal phonocardiography, transabdominal and direct electrocardiography, instantaneous heart rate monitoring, and amniotic fluid pressure recording "influenced" obstetric management in 69 of 873 patients studied (12.5 percent). The clinical value of these methods warrants the expense and effort required to employ them. "Specific" uterine contraction arrhythmias, herein described, suggest that the uterus in labor obeys electrophysiologic laws similar to those governing the heart.

The Effect of Hormones in Mammary Gland Disorders.

Bernard A. Eskin, MD, FACOG.

Breast physiology and tumorogenesis seem to be directly related to hormonal activity. Recent studies show how the normal, lactating and neoplastic breast respond to hormonal secretions from both pituitary and ovary.

Clinical case series have been employed to show more recent endocrine therapies and their influence on such problems as: (1) post-partum breast engorgement, (2) breast cancer, and (3) menstrual cycle breast discomfort.

The utilization of breast diagnostic methods such as thermography and mammography by the author in the described studies will be presented.

Boundaries of Psychiatry.

John L. Simon, MD

The question of the proper boundaries of the province of the psychiatrist are discussed. Recent criticisms of the activity of some psychiatrists on grounds that it is not truly medical treatment are considered. An attempt is made to arrive at an answer on empirical, social and historical grounds.

Accident Ward Management of Acute Cranial Injury in the Community Hospital.

William F. Bouzarth, MD, Department of Neurological Surgery, Temple University School of Medicine, Philadelphia, Pennsylvania.

The first echelon care of the unconscious patient with acute cranial injury is most often *not* by a neurosurgeon. The proper management in the accident ward of the unconscious patient before the neurosurgeon arrives, and the principles of primary care are:

C ontrol Hemorrhage - via compression
R estore airway - semiprone position or endotracheal tube
A ssess injuries - be a triage officer
N eurological examination - record a special "mini" examination
I ndwelling catheter-insert above the clavicle (2 1/2 percent G in 1/2 N. PSS)
A nticonvulsive drugs - IV dilantin (200 mgm)
L evin tube - aspirate gastric contents

The prineiples of secondary care are:

I nsert Foley Catheter - I & O Sheet should be started
N eurological Wateh Sheet - continue the mini examination
J ugular vein - neck in neutral position
U ltrasound - If facilities available
R epair wound - close the galea
Y es, do *NOT* use hypertonic agents especially 50 percent Glucose

The scientific rational of the above recommendations will be stressed.

Review of 37 Autopsy Proven Intracranial Aneurysm at the University Hospital.

L. P. Sánchez Longo, MD, Carlos Cruz de León, MD, Juan Rodríguez, MD, and Rosa E. Fiol, MD.

37 autopsy proven cases of intraeranial aneurysm were found between 1960-1968 at the University Hospital after review a total of 7842 autopsies.

24 cases were female and 13 males. The most common sites were anterior communicating, earotides middle cerebral and anterior eerebral arteries.

A review of the clinicopathologic correlation will be included.

Central Nervous System Tumors in Puerto Rico: Clinico Pathological Correlation.

Ivette Matos, MD, Rosa E. Fiol, MD and Rosendo López, MD

A survey of the autopsies performed at the Institute of Legal Medicine and at the University District Hospital from 1960 to 1967 was earried out; of these 122 cases presented C. N. S. tumors.

The correlation between the elinical and pathological aspects is discussed.

The Nervous System Complications in Typhoid Fever.

L. P. Sánchez Longo, MD, Rosa E. Fiol, MD, Charles A. Payne, MD, and Víctor Mojica, MD.

Two unusual eases with central nervous system complications secondary to typhoid fever are reported.

The first case is that of a 19 year old female with a picture of encephalopathy diagnosed after she was originally suspeeted of having eneephalitis of other etiology. In spite of the age and the oeeurrence of seizures the patient recovered on chloromphenicol therapy.

The seeond ease is that of a 49 year old female with eerebellar ataxia complieating typhoid fever.

Autopsy material from the files of the School of Medicine was reviewed.

The medical literature available to us since 1939 is included.

Síndromes Quiasmáticos y Paraquiasmáticos

Professor R. Bartolozzi.

Anatomía clínica de la región quiasmática: Esfenoides, bloque diencéfalo-hipofisario, vías ópticas, polígeno de Willis, seno cavernoso, nervios óculomotores, trigémino, formaciones meníngeas.

Cuadros clínicos: Síndrome quiasmático clásico, síndromes quiasmáticos atípicos, síndromes del seno cavernoso, de su pared externa, síndrome del vértice de la órbita, síndrome de la hendidura esfenoidal.

Estudio etiológico de estos diversos síndromes. Su diagnóstico.

The Physiological Basis for the Control of Intracranial Pressure and the Therapeutic Applications.

William F. Bouzarth, MD and Henry A. Shenkin, MD, Temple University School of Medicine, Philadelphia, Pennsylvania.

Of the three fluid compartments within the skull only the blood volume can be changed rapidly; eerebral blood flow is modified by many factors. The control of intracranial pressure by non-surgical techniques has been a significant advance in facilitating neurosurgical operative procedures and may also be of value at the bedside. It should be recognized that a good measure of this eontrol is effected through ehanges in eerebral circulation. Hyperventilation and/or pharmaeologically induced hypotension accomplishes reduction of intracranial pressure exclusively by diminution of cerebral circulation. Such measures should be avoided in patients with impaired cerebral vasculature but are of partieular value in patients with vascular tumors, malformations or aneurysm. On the other hand, osmotie agents, while accomplishing the decrease of intracranial pressure by dehydrating the brain, markedly increase cerebral blood flow. They are indicated in patients with potentially impaired cerebral circulation but should be used with eaution when intracranial bleeding is suspected, especially in acute craniocerebral trauma. The effeet of hypothermia upon eerebral blood flow is uneertain, depending on many faetors, and appears to have its best effeet on cerebral metabolism. Drainage of cerebral spinal fluid, decompression operations and the glueo-

steroids probably do not effect cerebral blood flow except if they lower extremely high intracranial pressure.

Parálisis Supranucleares, Internucleares, Nucleares e Infranucleares.

Professor R. Bartolozzi.

Descripción de la anatomía clínica de centros y vías que rigen los movimientos oculares, analizando sus diversos niveles. Esquema fisiológico de la motilidad ocular: Visión binocular, movimientos voluntarios y reflejos.

Estudio de la patología de las parálisis óculomotoras: parálisis de mirada (supra e internucleares), cuadros clínicos, interpretación de ciertas parálisis congénitas.

Cuadros clínicos de las parálisis nucleares e infranucleares.

Cataratas en Afecciones Generales

Professor R. Bartolozzi.

Junto a la catarata senil, encontramos en la clínica un extenso grupo de opacidades cristalinianas que ofrecen la característica y el interés de aparecer integradas dentro de muy diversos cuadros clínicos generales. Podemos agruparlos en: Cataratas endocrinas, metabólicas, sindermatóticas o dermatógenas. Nosotros hemos tenido ocasión, recientemente, de estudiar un típico caso de catarata tetánica. En la actualidad estudiamos detenidamente, en colaboración con la Cátedra de Dermatología dirigida por el Prof. García Pérez, casos de enfermedad de Werner, de Steinert y, muy especialmente, de un considerable número de cataratas atópicas. Creemos muy interesante llamar a la atención a endocrinólogos, dermatólogos, alergólogos, internistas, sobre este tipo de cataratas.

Recurrent (Secondary) Pterygium

Guillermo Picó, MD, Department of Ophthalmology, University of Puerto Rico School of Medicine.

The cardinal consideration in the management of recurrent pterygium is prevention, and to understand how to prevent it one must understand its pathogenesis. It is an acute inflammatory process, in sharp contrast to the pathological process in a primary pterygium which is the result of a chronic inflammation and possible degeneration produced by solar radiation.

There are basic steps in the surgical technique used as a primary procedure in pterygium which together with the application of Beta irradiation are important in the prophylaxis of recurrent pterygium.

The surgical procedures used in the management of recurrent pterygium must vary depending on the type of the lesion.

Sutures in Cataract Surgery.

Roberto Buxeda, MD, MSc/Med), FACS, Assistant Clinical Professor of Ophthalmology, School of Medicine, UPR; Chief, Section of Ophthalmology, Presbyterian Hospital.

The most important sutures that have been developed in the history of cataract surgery will be discussed and illustrated with slides. The advantages and virtues of each type of suture will be presented. The sutures most frequently used in modern ophthalmology will be discussed in depth.

Cirugía Radical en el Tratamiento de las Poliposis Naso-Sinusales.

Raúl E. Bertrán-Escanaverino, MD, FACS, Jefe de la Sección de Otorrinolaringología del Hospital de Veteranos, San Juan, P. R.

Después de un breve recuento anatómico, enfatizando las relaciones del laberinto etmoidal como encrucijada de los senos perinasales, se describe someramente la técnica operatoria descrita por Ermiro de Lima del Brasil o sea la fronto-etmoido-esfenectomia transmaxilar y se presenta una estadística de pacientes tratados en el Hospital de Veteranos y en práctica privada.

Atresia de las Coanas en el Recién Nacido; Diagnóstico Temprano y Tratamiento Activo.

Nelson Fernández Blasini, MD, FACS.

Este tema será narrado a base de dispositivos a color, de experiencia clínica en tres casos del autor. Se discutirá brevemente la Embriología y Etiología de Atresia de las Coanas, así como el diagnóstico inmediato y tratamiento de emergencia en esta entidad que constituye un reto al obstetra, pediatra y otorrinolaringólogo.

The San Gabriel School for the Deaf.

Alexis O. Fernández, MD, MS.

Being the only school for the deaf presently operating in Puerto Rico, it is important that physicians in general be acquainted with the work being done at this institution.

This presentation deals with the program now existing at the school, mainly from a clinical point of view. Plans for further development of clinics, as well as educational innovations, are discussed.

Ley Núm. 22

Aprobada en 22 de abril de 1931

(Según quedó enmendada por la Ley Núm. 61 de 22 de abril de 1958, Núm. 97 de 21 de junio de 1961; Núm. 17 de 11 de junio de 1965; Núm. 127 y 135 de 28 de junio de 1969; y Núm. 147 de 30 de junio de 1969).

Para regular el ejercicio de la profesión médica en Puerto Rico; para establecer un Tribunal Examinador de Médicos; para derogar la "Ley estableciendo un Tribunal Examinador de Médicos, regulando el ejercicio de la profesión médica, y para otros fines". Aprobada el día 30 de julio de 1923; para derogar la "Ley para enmendar la Ley titulada "Ley estableciendo un Tribunal Examinador de Médicos, regulando el ejercicio de la profesión médica y para otros fines, aprobada en 30 de julio de 1923; y para otros fines", aprobada el día 1ro. de julio de 1924, y para otros fines.

Decrétase por la Asamblea Legislativa de Puerto Rico:

"Artículo 1. Al empezar a regir esta ley, el Gobernador de Puerto Rico, por y con el consejo y consentimiento del Senado de Puerto Rico, a propuesta de las sociedades o asociaciones médicas, debidamente inscritas en el Departamento de Estado de Puerto Rico, como sociedades o asociaciones para fines no pecuniarios, nombrará por un término de cuatro años, un Tribunal Examinador de Médicos, compuesto de siete médicos, con no menos de cinco años de ejercicio de la profesión en el Estado Libre Asociado cada uno, y de acuerdo con las siguientes disposiciones: Disponiéndose, que no más de tres de estos médicos serán residentes de la ciudad de San Juan, y disponiéndose, además, que para los exámenes de podiatría se añadirá al Tribunal un podiatra nombrado por el Gobernador con el consejo y consentimiento del Senado de Puerto Rico, a propuesta de la sociedad o asociación de Podiatras de Puerto Rico, debidamente inscrita en el Departamento de Estado del Estado Libre Asociado como sociedad o asociación de fines no pecuniarios".

"Artículo 2. Dicho tribunal se proveerá de un sello oficial y elegirá de su seno, en la primera sesión y cuando hubiese una vacante, un Presidente y 6 vocales. Cuatro miembros del Tribunal constituirán quorum y las decisiones se tomarán por mayoría".

"Artículo 3. El Presidente y el Secretario de Estado firmarán todo documento oficial emanado del Tribunal Examinador de Médicos".

"Artículo 4. El Tribunal tendrá a su cargo la autorización, en el Estado Libre Asociado de Puerto Rico, de acuerdo con las disposiciones de esta ley, del ejercicio de la profesión de médico-cirujano, podiatra, osteópata y de las profesiones auxiliares, quedando por la presente autorizado para expedir licencias para las profesiones siguientes: de médico-cirujano, de osteópata, de podiatra, de practicante de enfermera obstetra o comadrona. Disponiéndose, que para la autorización del ejercicio de la podiatría en Puerto Rico el Tribunal quedará compuesto por dos de los médicos y el podiatra."

"Artículo 5. El Secretario de Estado rendirá al Secretario de Hacienda una cuenta mensual de sus ingresos y gastos y certificará la asistencia por sesiones de los miembros del Tribunal; deberá llevar un libro de actas de las sesiones, las cuales firmará juntamente con el Presidente, y también tendrá a su cargo un registro de todos los solicitantes de licencias, debidamente clasificados por profesiones, con la expresión de la edad de los mismos, el tiempo invertido en sus estudios y el nombre y lugar de las instituciones que expidieron los diplomas correspondientes, o los certificados de asistencia y práctica. También se hará constar en dicho registro si ha sido rechazado el aspirante o si ha recibido alguna licencia con arreglo a esta ley. Además tendrá a su cargo y bajo su custodia y responsabilidad todos los documentos, libros de registros y archivos pertenecientes al Tribunal."

"Artículo 6. El Tribunal presentará al Gobernador

de Puerto Rico, por conducto del Secretario de Estado, un informe anual demostrativo de sus trabajos, dando cuenta del número de solicitudes recibidas y licencias expedidas; de las cuentas de gastos e ingresos; cuentas de dietas recibidas por los miembros del Tribunal y quiénes las recibieron, y los demás datos que el Gobernador solicitare".

"Artículo 7. El Tribunal podrá contratar los servicios de un abogado en casos en que lo estime necesario; y los honorarios serán satisfechos de los fondos del Tribunal Examinador de Médicos; y si éstos no fueren suficientes, de cualesquiera otros fondos existentes en el Tesoro Estatal, no destinados para otras atenciones; tendrá facultad para citar testigos y obligarlos a comparecer ante él, y estará asimismo facultado para tomar declaraciones y juramentos y para recibir las pruebas que le fueren sometidas en todo asunto que caiga dentro de su jurisdicción. Asimismo podrá exigir que se le envíen copias de libros, documentos o extractos de ellos, en todos los casos en que tenga derecho a examinar los originales o a exigir la presentación de los mismos. Toda citación con apercibimiento expedida por el Tribunal, deberá llevar el sello del mismo, y deberá ser suscrita por el Presidente o el Secretario de Estado, pudiendo ser notificada por cualquier adulto en cualquier parte del Estado Libre Asociado de Puerto Rico."

"Todo testigo que fuere requerido para comparecer ante el Tribunal o ante cualquiera de sus miembros, recibirá por cada día de comparecencia la suma de un dólar y cincuenta centavos ($1.50), y diez (10) centavos por cada milla recorrida por el testigo, por la ruta usual, entre su casa y el sitio de la comparecencia. Todos los desembolsos que se hicieren en el pago de dichos honorarios se pagarán en la misma forma que se dispone en el primer párrafo de este artículo."

"Los honorarios para notificación de una citación con apercibimiento, serán iguales a los que se pagan por servicios similares en el Tribunal Superior. Los honorarios, gastos y costas en cualquier audiencia o en relación con ella serán satisfechos en la forma que el Tribunal acordare."

"Si cualquier individuo que hubiere sido citado con apercibimiento para comparecer ante el Tribunal o ante cualquiera de sus miembros, dejare de obedecer dicha orden o citación, o si cualquier individuo que compareciere ante el Tribunal o ante cualquiera de sus miembros se negare a prestar juramento o a declarar, o a contestar cualquier pregunta pertinente, o a presentar cualquier documento pertinente cuando así lo ordenare el Tribunal, éste podrá invocar la ayuda de cualquier Sala del Tribunal Superior de Puerto Rico, para obligar dicha comparecencia, la declaración de los testigos y la presentación de documentos; y dicha corte por causa justa demostrada, expedirá una orden a cualquier persona para que comparezca ante el Tribunal o cualquiera de sus miembros y presente los papeles y documentos requeridos, si así se le ordenare, y para que preste declaración en cuanto al asunto de que se trate; y la falta de obediencia a dicha orden de la corte, constituirá desacato y podrá ser castigada como tal".

"El Tribunal podrá promulgar las reglas y reglamentos que estime conveniente para la buena marcha de dicho organismo, y para el mejor cumplimiento de esta Ley, siempre que aquellos no estuvieren en pugna con la misma, ni impidan el cumplimiento de los deberes específicos en ella establecidos. Tales reglas y reglamentos, una vez aprobados por el Tribunal, tendrán fuerza de ley y serán promulgados y publicados por el Secretario de Estado de Puerto Rico."

"Artículo 8. A cada miembro del Tribunal, por la presente se le asigna la suma de siete (7) dólares por cada día o fracción que prestare sus servicios, y además, a los no residentes se les pagará millaje, a razón de diez (10) centavos por cada milla recorrida."

"Artículo 9. Toda persona que fuere denunciada y convicta de ejercer ilegalmente la medicina o cirugía, la osteopatía, la podiatría, o cualquiera rama de éstas o de sus profesiones auxiliares, o la obstetricia, contraviniendo a las disposiciones de esta ley, por cada infracción incurrirá en un delito menos grave y será castigada con una multa que no bajará de veinticinco dólares o prisión en la cárcel, o ambas penas a discreción del tribunal; Disponiéndose, que el Tribunal Superior tendrá jurisdicción concurrente sobre estos casos; Disponiéndose, además, que en caso de reincidentes el delito aparejará pena mínima de treinta días de cárcel. Para los efectos de esta ley se considerará como ejerciendo ilegalmente la medicina y cirugía, la osteopatía, la podiatría, o cualquiera de las ramas de estas profesiones, o la obstetricia, o cualquiera de las profesiones auxiliares de la medicina y cirugía, a cada persona que, sin poseer una licencia expedida por el Tribunal Examinador de Médicos de Puerto Rico, se anunciare o se hiciese pasar como médico, cirujano, osteópata, podiatra, practicante, enfermera obstetra o comadrona, y que se haga pasar como capacitado para diagnosticar, tratar, operar o recetar para cualquier enfermedad, dolor, lesión, deformidad, o condición física, o que lleve a cabo o se ofrezca

por cualesquiera medios o métodos para diagnosticar, tratar, operar, o recetar para cualquier enfermedad, dolor, lesión, deformidad, o condición física, reciba o no remuneración por tales servicios; Disponiéndose, que los estudiantes de medicina debidamente matriculados en escuelas médicas organizadas en Puerto Rico podrán, bajo la supervisión docente de un médico debidamente autorizado para ejercer la medicina en Puerto Rico, llevar a cabo exámenes en seres humanos, recetar, ayudar en operaciones, dar anestesia, atender casos de cirugía menor, y atender casos de parto como parte de sus estudios, mientras asisten a la escuela de medicina; Disponiéndose, además, que constituirá delito menos grave sujeto a las mismas penalidades enumeradas anteriormente: 1. El uso del título de 'Doctor en Medicina', o cualquiera abreviatura derivada del mismo, incluyan o no los términos 'Quiropodista', 'Podiatra', excepto en los casos de personas que estuvieren legalmente autorizadas para ejercer la medicina en Puerto Rico. 2. El uso de los términos 'Especialista Pédico', 'Cirujano Pédico', 'Cirujano Ortopédico', 'Especialista Ortopédico', o cualquiera otra derivación de los mismos, excepto en los casos de personas legalmente autorizadas para ejercer la profesión médica en Puerto Rico. 3. El anunciarse como quiropodista, podiatra, a menos que sea un podiatra legalmente autorizado para ejercer dicha profesión en este Estado Libre Asociado, haciendo saber que el anunciante trata enfermedades y dolencias de las condiciones anormales de los pies."

"Artículo 10. El Tribunal celebrará exámenes regulares en la Capital del Estado Libre Asociado, dos veces al año, en el primer y tercer trimestres del año; Disponiéndose, que se celebrarán exámenes extraordinarios para médico-cirujano cuando seis o más aspirantes lo soliciten. Disponiéndose además, que podrá ofrecer periódicamente exámenes de reválida totales o parciales en o fuera de Puerto Rico cuando lo considere necesario y de acuerdo con normas que establezca el Departamento de Estado en coordinación con el Tribunal.

"Artículo 11. Los exámenes de reválida de médicos cirujanos se efectuarán por escrito y según las reglas que dicte el Tribunal, sobre las siguientes materias: anatomía humana, histología normal y patológica, fisiología, bacteriología, higiene pública y privada, medicina general y diagnóstico, cirugía general, obstetricia, ginecología, farmacología, medicina legal y toxicología, materia médica y terapéutica, enfermedades tropicales, y además se efectuará un examen clínico práctico. El examen sobre enfermedades tropicales constará de dos partes: una teórica por escrito y otra práctica, incluyendo microscopía, laboratorio y diagnóstico en casos clínicos. Los exámenes de reválida de osteópatas, versarán sobre las mismas materias de los médicos-cirujanos, exceptuando obstetricia, ginecología, materia médica, farmacología, terapéutica, medicina legal y enfermedades tropicales. De igual modo, los osteópatas deberán sufrir un examen clínico práctico. Los exámenes de reválida de podiatras versarán, entre otras asignaturas, sobre bacteriología, histología, anatomía, patología, fisiología, química, práctica de podiatría, materia médica y terapéutica. Los exámenes podrán ser contestados en los idiomas inglés o español, a elección del examinado."

"Artículo 12. Los derechos de exámenes y certificados o licencias serán como sigue: Para los médicos cirujanos, osteópatas y podiatras veinticinco (25) dólares, y cinco (5) dólares para una licencia si se expidiere. Para las enfermeras obstetras y cirujanos menores o practicantes cinco (5) dólares por derecho de examen y cinco (5) dólares por el certificado o licencia si se expidiere. Todos los derechos se pagarán por adelantado en giro postal o cheque certificado, a nombre o a la orden del Secretario de Estado. Todo aquel que no lograse pasar el examen requerido o por causa justificada y aceptable para el Tribunal no hubiere podido presentarse a la convocatoria correspondiente, tendrá el privilegio de ser admitido a tomar el examen próximo, libre de derechos. El importe de estos derechos, no será devuelto al solicitante por dejar de presentarse a examen, ni por haber sido desaprobado."

"Artículo 13. Todos los fondos recaudados por cualquier concepto por cada una de las juntas examinadoras y juntas de registro enumeradas en la sección 3 de este título, ingresarán al Fondo General del Tesoro Estatal." (20 LPRA 6).

"Todos los egresos por concepto de servicios personales así como cualquier otro gasto incurrido en la realización de los propósitos para los cuales fueron creadas todas y cada una de las juntas examinadoras y juntas de registro, se pagarán de aquellas asignaciones que considere necesarias la Legislatura de Puerto Rico y que se incluirá en el Presupuesto General de Gastos." (20 LPRA 7).

"Artículo 14. Toda persona que aspire a obtener licencia para ejercer en el Estado Libre Asociado de Puerto Rico la profesión de Médico-Cirujano o la de Osteópata, deberá cumplir los siguientes requisitos:

1. Ser mayor de edad y ciudadano de Estados Unidos

de América.

2. Poseer un diploma o título de médico cirujano expedido por alguna universidad acreditada de los Estados Unidos, Puerto Rico, o país extranjero, registrada por el Tribunal Examinador de Médicos y que mantenga un alto nivel en las materias propias de dichá profesión.

3. Haber aprobado los exámenes a que se refiere el Artículo 11 de esta ley; Disponiéndose, que el Tribunal Examinador de Médicos podrá eximir del requisito de examen aquellas personas que hayan obtenido licencia para ejercer dicha profesión mediante exámenes aprobados ante el tribunal correspondiente en los estados de la Unión Americana, con los cuales el Tribunal Examinador de Médicos haya establecido relaciones de reciprocidad, según se autoriza en el artículo 18 de esta Ley, y a aquellos médicos cirujanos que posean un diploma expedido por el Tribunal Nacional de Médicos Examinadores (National Board of Medical Examiners of the United States of America). En ambos casos dichos médicos cirujanos deberán cumplir con los demás requisitos exigidos en este artículo. Disponiéndose, que los aspirantes a licencia que haya de obtenerse mediante los exámenes a que alude este Inciso 3 de este Artículo, cuyos títulos profesionales hubieren sido expedidos por alguna universidad que no exija como requisito para ingresar en la facultad de medicina un grado de bachiller o lo que estime la equivalencia del mismo, deberán además de los estudios correspondientes a los cuatro años de una alta escuela acreditada, haber aprobado no menos de tres años de estudios a nivel universitario donde deberán cursar y aprobar estudios de un año académico en química orgánica e inorgánica, física y biología o su equivalente según lo determine el Tribunal Examinador de Médicos. Las disposiciones de este Inciso sólo serán aplicables a las personas que comiencen estudios de medicina a partir del año 1959.

4. El aspirante suministrará evidencia satisfactoria al Tribunal Examinador de Médicos de que después de haberse graduado en la escuela de medicina ha trabajado como interno por no menos de un año en un hospital, aprobado por el Tribunal.

5. Practicar por un período mínimo de un año como médico en el servicio público de Puerto Rico en el sitio que designe el Secretario de Salud en consulta con el médico y aprobado por el Tribunal Examinador de Médicos de Puerto Rico, mediante licencia especial expedida al efecto, indicando el pueblo donde habrá de llevarse a cabo dicha práctica. Se entenderá por "el servicio público" el servicio prestado en Puerto Rico en los servicios médicos asistenciales, municipales, estatales o federales. Si se presentare un candidato a licencia y no hubiere vacante una posición en el servicio público, que permita al aspirante cumplir con este requisito, el Secretario de Salud así lo informará al Tribunal Examinador de Médicos y dicho Tribunal eximirá al aspirante del cumplimiento de dicho requisito. Se faculta al Tribunal Examinador de Médicos para que de común acuerdo con el Secretario de Salud, autorice a médicos con más de 10 años de práctica, reconocidamente especializados en los distintos campos de la medicina, a cumplir este requisito bajo condiciones especiales que permitan que el interés público reciba el máximo beneficio que pueda derivarse de una juiciosa y eficaz utilización por el estado, de los servicios especializados de tales médicos. Cualquier médico que no haya podido cumplir con los requisitos que dispone este Inciso, por haber sido llamado a servir en las Fuerzas Armadas de los Estados Unidos, estará exento de cumplir con dichos requisitos al regresar a Puerto Rico."

6. Aquellas personas que se hubieran graduado antes de la aprobación de esta ley serán admitidas al ejercicio de la profesión al someter en lugar del requisito de un año de internado, evidencia de haber ejercido legalmente la profesión de medicina por un período de cinco años en los Estados Unidos o en cualquier otro país.

Toda persona que aspire a obtener licencia para ejercer la profesión de podiatra en Puerto Rico deberá llenar los siguientes requisitos:

1. Ser mayor de edad y ciudadano de Estados Unidos.

2. Haber aprobado los exámenes a que se refiere el Artículo 11 de esta Ley.

3. Poseer un diploma o título de podiatra expedido por alguna escuela de Podiatría reconocida por el Tribunal, cuyo curso de estudios sea de no menos de cuatro (4) años luego de haber aprobado un curso de los (2) años de bachillerato en una universidad o colegio acreditado.

Una vez llenados los requisitos anteriores, el solicitante que desease ser admitido a examen, deberá llenar los impresos que suministre el Tribunal para que se acredite bajo juramento, la identidad, la autenticidad de los diplomas y títulos que posea, mayoría de edad, y las de buena conducta y reputación de que deberá gozar; y una vez aprobados los exámenes que señala el Inciso (2) de este artículo, el Tribunal expedirá al interesado una licencia autorizándolo para

ejercer libremente la profesión de médico cirujano o de osteópata o de podiatra, según sea el caso, en el Estado Libre Asociado de Puerto Rico.

Las disposiciones de esta sección serán aplicables a los osteópatas en toda la extensión que abarquen los estudios de esta profesión. Disponiéndose, sin embargo, que ningún osteópata podrá intervenir en ningún caso de parto o en el tratamiento de afecciones ginecológicas ni recetar medicamentos de ninguna clase. Y disponiéndose, además, que las disposiciones de este artículo serán aplicables a los podiatras en toda la extensión que abarque los estudios de esta profesión, la cual queda definida como la ciencia que comprende el diagnóstico y el tratamiento de enfermedades de los pies por métodos médicos, mecánicos, de manipulación, quirúrgicos y eléctricos, con la excepción de la administración de anestesia que no sea anestesia local, el tratamiento de enfermedades sistemáticas y la amputación del pie o dedos de los pies. La infracción de estas disposiciones constituirá práctica ilegal de la medicina, y sujetará a su autor a las responsabilidades consiguientes; y disponiéndose, además, que en el caso de médicos de buena reputación científica que vinieren al Estado Libre Asociado de Puerto Rico y desearen ejercer la medicina, el Tribunal Examinador de Médicos, podrá, después de aquilatar los méritos y autoridad científica del interesado, librarle la correspondiente licencia para ejercer la medicina en Puerto Rico, por término de noventa días que podrá ser extendido a noventa días más, si el Tribunal Examinador de Médicos así lo acordare; y disponiéndose, además, que no podrá desempeñar las funciones de médico cirujano en ningún cargo público, ninguna persona que no haya sido previamente autorizada por dicho Tribunal, para ejercer la profesión de médico-cirujano en Puerto Rico; Y disponiéndose, además, que en lo sucesivo sólo podrán ejercer la profesión médica en Puerto Rico las siguientes personas: (1) Los que obtuvieron licencias de la Junta Superior de Sanidad, desde su fundación hasta el año 1901 y que aparezcan sus nombres en los registros correspondientes; (2) Los que obtuvieron asimismo licencias de la Junta Superior de Sanidad y cuyos nombres no aparezcan en dichos registros, pero que presenten sus licencias al Tribunal Examinador de Médicos para su registro en el récord del Tribunal; (3) Los que tengan licencias expedidas por el Tribunal desde el año 1903 en adelante y estén inscritos en los registros del Departamento de Salud de Puerto Rico; (4) Los que por sentencia del Tribunal Supremo de Puerto Rico tengan derecho reconocido para ejercer la medicina y cirugía en Puerto Rico a virtud de legislación anterior; Disponiéndose, asimismo que los así autorizados para ejercer deberán presentar al Tribunal la documentación acreditativa de tal reconocimiento, para su registro correspondiente; Y disponiéndose, además, que a petición del Tribunal Examinador de Médicos, el Secretario de Justicia de Puerto Rico, solicitará un auto de injunction para impedir que la persona acusada de ejercer ilegalmente la medicina y cirugía o sus profesiones aliadas en este Estado Libre Asociado, continúe el ejercicio de dicha profesión de médico o de cualesquiera de sus ramas, hasta tanto se resuelva la acusación; Y disponiéndose, además, que ninguna persona que antes y después de la aprobación de esta ley tenga revalidado su diploma de optómetra y obtenido la correspondiente licencia para ejercer la optometría en el Estado Libre Asociado de Puerto Rico, estará autorizada a examinar, diagnosticar, tratar o curar pacientes afectos de síntomas oculares que sean o puedan ser independientes de los defectos de refracción, ni a anunciarse como capaz de hacerlo ni a usar medicinas o drogas para el tratamiento de afecciones de los ojos o para los exámenes que practique, dentro de sus facultades y atribuciones, ni a vender tales medicinas; sino que sólo podrá hacer exámenes para la corrección de las personas afectas de errores de refracción y llevar a cabo la fabricación y la adaptación de los cristales y monturas correspondientes. La infracción de cualquiera de dichas disposiciones constituirá práctica ilegal de la medicina, con las responsabilidades consiguientes".

"Artículo 15. Los médicos del Ejército, Marina y Servicio de Sanidad Pública (United States Army and Public-Health Service), quedan dispensados de los exámenes anotados en el Artículo 11, y podrán ejercer la medicina en Puerto Rico, mientras se encuentren en el ejercicio activo de sus funciones oficiales, para lo cual deben obtener una licencia especial expedida por el Tribunal y pagar veinticinco (25) dólares de derechos además de cumplir con lo establecido en el Artículo 14 de esta Ley. Este derecho se entenderá que ha cesado tan pronto como cesara en el ejercicio de sus funciones oficiales."

"Artículo 16. Quedan también exentos de los requisitos de examen, aquellos médicos-cirujanos que posean un diploma expedido por el Tribunal Nacional de Médicos Examinadores (National Board of Medical Examiners of the United States of America), pero deberán obtener su licencia y pagar los derechos correspondientes, según el Artículo 12."

"Artículo 17. El Tribunal no expedirá ninguna licencia provisional autorizando la práctica de la medicina y cirugía en Puerto Rico, excepto las especiales mencionadas en las leyes en vigor que regulan el ejercicio de la medicina en Puerto Rico; Disponiéndose, que todo médico cirujano que deseare ingresar como médico interno en cualquier hospital o clínica en Puerto Rico, antes de haber revalidado su título ante el Tribunal Examinador de Médicos, deberá presentar al Tribunal todas las credenciales exigidas por ley para ser admitido a examen y proveerse de una licencia especial a tal efecto, que le será expedida por el período de un año después de aprobadas sus credenciales por este Tribunal."

"La omisión de este requisito constituirá práctica ilegal de la medicina en Puerto Rico."

"Artículo 18. El Tribunal Examinador de Médicos estará autorizado para establecer, mediante las condiciones y requisitos que juzgue necesarios, relaciones de reciprocidad de dispensa de examen, directamente con los "Estados Unidos de América", o de cualquier otro país, cuyos Tribunales exijan el más alto grado de educación profesional; Disponiéndose, que el Tribunal Examinador de Médicos podrá conceder a los médicos que sean ciudadanos de otros países los mismos privilegios y derechos que esos países concedan a los médicos de los Estados Unidos y de Puerto Rico. En el caso de revocación de licencias por el Estado de Nueva York u otro estado en el cual el Tribunal Examinador de Médicos de Puerto Rico tenga convenio de reciprocidad, o por el National Board of Medical Examiners de los Estados Unidos, —ipsofacto—quedará revocada también la licencia que haya sido extendida por el Tribunal Examinador de Médicos de Puerto Rico al mismo interesado."

"Artículo 19. Toda persona que obtuviera un certificado del Tribunal, deberá dentro de los treinta días de la fecha de expedido el mismo, hacer que se tome razón de dicho certificado en el Departamento de Salud de Puerto Rico, donde se llevará un registro al efecto, según lo dispone la vigente 'Ley de Sanidad.."

"Artículo 20. Para el ejercicio de la profesión de enfermería obstétrica en el Estado Libre Asociado de Puerto Rico, se requerirá la obtención de una licencia, para la expedición de la cual se deberán llenar a satisfacción del Tribunal, los requisitos señalados a continuación: Ser mayor de edad, saludable física y mentalmente, de buena conducta moral y ser graduada de una escuela superior reconocida por el Departamento de Instrucción Pública del Estado Libre Asociado o su equivalente. La identificación de las solicitantes se hará mediante declaración jurada por las mismas, y de cualesquiera otras pruebas que el Tribunal Examinador exigiere. Se exigirá a toda solicitante que presente una licencia en vigor de enfermera graduada y ser graduada de una escuela de enfermería obstétrica reconocida por el Tribunal, cuya graduación sea el producto de estudios teóricos prácticos por un período no menor de 6 meses durante los cuales las estudiantes completarán un currículo a base de práctica supervisada por la facultad médica y de enfermería obstétrica de una escuela debidamente organizada para este propósito. Esta práctica incluirá la atención de 25 alumbramientos normales y experiencia clínica en el manejo de casos en las distintas fases de la obstetricia, incluyendo la participación en el manejo de los aspectos de la obstetricia complicada. La experiencia clínica deberá efectuarse en aquellas facilidades hospitalarias que para este propósito estén debidamente reconocidas por el Tribunal Examinador de Médicos. Aceptadas las solicitantes, éstas deberán aprobar un examen teórico en obstetricia que incluya, además, los fundamentos y principios pediátricos y ginecológicos que forman parte del ciclo obstétrico. El examen se llevará a cabo de conformidad con las reglas y reglamentos que dicte el Tribunal. Aprobado el examen, el Tribunal expedirá a cada interesada una licencia autorizándola para ejercer la profesión de enfermería obstétrica en el Estado Libre Asociado de Puerto Rico; Disponiéndose, que tal licencia sólo autorizará la asistencia de partos normales; y el cuidado de la madre durante las distintas fases del ciclo materno, ambos bajo supervisión médica."

El Tribunal Examinador de Médicos reglamentará la práctica de la profesión de enfermería obstétrica. Será motivo de cancelación de la licencia la infracción a las disposiciones de los reglamentos dictados por el Tribunal Examinador de Médicos a tales efectos. La cancelación se llevará a efecto según dispone el Artículo 23 de esta Ley.

Se autoriza al Departamento de Salud para expedir, cuando lo crea conveniente, permiso de *comadrona auxiliar;* para fijar las facultades y deberes de las mismas, y para dar y fijar la instrucción a ese efecto correspondiente, sin la cual no podrá expedirse tal permiso."

"Artículo 21. Toda persona que desee ejercer la profesión de practicante en Puerto Rico deberá, al solicitar la licencia correspondiente, además de someter al Tribunal, las pruebas de su identificación personal, y los diplomas, o certificados que posea, llenar los impresos que le sean suministrados por el Secretario de Estado

y demostrar que es mayor de edad, que goza de buena salud y reputación moral. Presentará ademas, un certificado acreditativo de haber cursado y aprobado las materias exigidas en los dos primeros años de estudio de instrucción secundaria. Deberá poseer y presentar, asimismo, un diploma obtenido mediante tres años de estudios teóricos y prácticos en uno o varios hospitales, reconocidos por dicho Tribunal como competentes para impartir la necesaria instrucción."

"Deberán, además, tomar y aprobar examen elemental ante dicho Tribunal, de las siguientes materias: física, química, anatomía y fisiología humanas, bacteriología, terapéutica, materia farmacéutica, toxicología, patología médica y quirúrgica, higiene pública y privada, asepsia y antisepsia. Pasarán además un examen práctico sobre aplicaciones de apósitos y vendajes, curaciones y cuidado de pacientes. Ambos exámenes, el teórico y el práctico, se efectuarán de acuerdo con las reglas y reglamentos que dicte el Tribunal. Aprobados estos exámenes, el Tribunal expedirá al interesado una licencia autorizándolo para ejercer libremente la profesión de practicante en el Estado Libre Asociado de Puerto Rico: Disponiéndose, que nada de lo contenido en este Artículo referente a requisitos para ser admitido a examen, afectará a los que con anterioridad a la aprobación de la Ley de 30 de julio de 1923, sufrieron su examen y así como a aquellos que aún conservan sus solicitudes en el archivo del Tribunal Examinador de Médicos; Disponiéndose, además, que los que poseen licencias de practicantes, ejercerán su profesión tan sólo dentro de los límites que los estudios aprobados para adquirir la misma determinan, y aplicarán sus conocimientos únicamente en casos de cirugía menor, y en aquellos casos en que actúen bajo la dirección y supervisión de un médico cirujano: Disponiéndose, también, que la infracción de las anteriores disposiciones, excepto cuando se trate de primeros auxilios en casos de envenenamientos, hemorragias graves, quemaduras, heridas graves, fracturas y cualquier otro estado de urgencia, será considerado como práctica ilegal de la medicina, sujeto a la penalidad que marca el Artículo 9 de esta Ley y a las disciplinarias que señala el Artículo 14 de la misma."

"Artículo 22. De acuerdo con lo establecido en el Artículo 10 de la ley original del año 1903, los archivos pertenecientes a la extinta sub-delegación de Medicina quedan en poder del Tribunal así como los del actual Tribunal Examinador de Médicos."

"Artículo 23. El Tribunal Examinador de Médicos, o el Secretario de Estado, por su propia iniciativa, o a virtud de queja o denuncia debidamente fundada, de cualquier persona natural o jurídica, podrá en cualquier momento investigar la identidad de cualquier persona que pretenda ser, o se anunciare o haga pasar como médico cirujano, osteópata, podiatra, practicante, enfermera obstetra o comadrona, licenciado o no, por el Tribunal y después de notificar por escrito al interesado, tendrá poder para exigirle que presente pruebas razonables y a satisfacción del Tribunal de que posee una licencia legalmente obtenida para practicar su profesión en el Estado Libre Asociado de Puerto Rico y de que en realidad es la persona a quien originalmente se expidió dicha licencia. Si de la investigación resultare que el denunciado no tiene licencia para practicar, o no le pertenece legítimamente la que posee, ésta será anulada por el Tribunal y, además, en cualquiera de los dos casos traspasará el expediente al Secretario de Justicia de Puerto Rico para la debida persecución de los infractores ante los tribunales del país; disponiéndose, que el Tribunal Examinador de Médicos tendrá poder para retirar y anular, temporal o definitivamente, la licencia que poseyere cualquier médico-cirujano, osteópata, podiatra, practicante, enfermera obstetra o comadrona que fuere convicto ante este Tribunal de haber incurrido en fraude o engaños cometido durante el ejercicio de la profesión, de haber cometido delito grave (felony), de ser alcohólico consuetudinario; adicto al uso de drogas narcóticas; de practicar o de ayudar a efectuar, de cualquier manera, método o forma, un aborto criminal de una mujer; de excederse en las atribuciones profesionales que le señala esta ley; de mala práctica en el ejercicio de su profesión, es decir: de incompetencia burda y manifiesta, con perjuicio de tercero; de conducta inmoral y deshonrosa; disponiéndose, asimismo, que el procedimiento a seguir para la anulación o suspensión temporal de una licencia será incoado por uno de los miembros del Tribunal designado por el Presidente, asesorado por el Secretario de Justicia de Puerto Rico, a virtud de querella presentada por cualquiera de los miembros del Tribunal o declaración jurada presentada por cualquier ciudadano. La querella o declaración deberá en todo caso aducir hechos que prima facie constituyan causa probable. El querellado tendrá para su defensa ante el Tribunal Examinador de Médicos todos los derechos concedidos a personas acusadas de delito, con excepción del juicio o investigación por jurado; disponiéndose, igualmente, que en todos los casos de anulación o suspensión de licencias el fallo del Tribunal Examinador de Médicos será comunicado a las auto-

dades fiscales y policíacas del Estado Libre Asoado para que exijan su debido cumplimiento; pero n los casos a los que se refiere el disponiéndose inediato anterior, y siempre que el fallo fuere la nulación o suspensión de licencia por más de un año, icho fallo no será firme ni comunicado a las autoriades fiscales y policíacas, mientras el Tribunal Supeor no lo haya revisado y juzgado el caso; y la perona interesada podrá apelar para ante dicho Triunal dentro del término de treinta días."

"Artículo 24. Toda persona que ejerciere cualquiera e las profesiones auxiliares de la medicina y cirugía n Puerto Rico sin licencia legal para ello, incurrirá n las mismas penas que determina el artículo 9 de sta ley. Disponiéndose, que dentro de los noventa ías después de la aprobación de esta ley, toda persona ue haya ejercido la quiropodía o podiatría en Puerto Rico por un período mayor de dieciocho (18) meses odrá solicitar por escrito una licencia del Tribunal Examinador de Médicos, quien vendrá obligado a exenderla sin examen siempre y cuando la evidencia resentada compruebe la competencia profesional del solicitante y disponiéndose que los solicitantes cubiertos bajo este artículo podrán ser, o ciudadanos de Estados Unidos, o residentes de Puerto Rico."

"Artículo 25. Toda ley o parte de la misma que se oponga a la presente, queda por ésta derogada."

"Artículo 26. Esta Ley empezará a regir a los 90 días después de su aprobación."

Ley Núm. 81

(Aprobada en 31 de mayo de 1967)

LEY

Para autorizar al Secretario de Salud a utilizar hospitales y centros de salud en no más de cinco pueblos de la Isla en forma experimental con el propósito de estudiar alternativas para el financiamiento y la organización de los servicios médico-hospitalarios públicos, ofreciendo estos servicios a toda la comunidad, disponer sobre la operación y administración de estos hospitales y centros de salud; y para reglamentar la forma de poner en ejecución esta ley.

EXPOSICION DE MOTIVOS

El Gobierno del Estado Libre Asociado de Puerto Rico invierte una gran cantidad de sus recursos económicos en servicios médico-hospitalarios a la ciudadanía. Los costos de estos servicios han aumentado continuamente, durante los últimos años. El nivel económico de las personas que utilizan estos servicios ha ido, y se espera continúe, mejorando a la luz del desarrollo económico de Puerto Rico. El Estado Libre Asociado actualmente presta servicios médico-hospitalarios, libre de costo, a aproximadamente 66 porciento de la población. Se está planificando, para desarrollarse en los próximos 10 años, un amplio programa de construcción, modernización y ampliación de facilidades de salud y bienestar. Este programa ha de proveer al país de facilidades hospitalarias de primera calidad que de acuerdo a las disposiciones vigentes no estarían disponibles para personas de ingresos económicos de la clase media baja o de la clase media alta, económicamente hablando. Esto evita que estas personas tengan acceso a servicios médicos de primera calidad mientras en las comunidades que residen se operan facilidades médico-hospitalarias del Estado. En la medida en que la tecnología médica requiere facilidades médicas más costosas, un mayor número de personas con ingresos económicos medianos quedan excluídos de la utilización de servicios médicos de calidad. Con el propósito de poner a la disposición de la clase media servicios médico-hospitalarios de calidad como los que ofrece ahora el Estado, se hace necesario encontrar una organización en la prestación de los servicios médicos que logre este propósito. Se hace necesario realizar un estudio experimental con tal propósito para que sin penalizar las clases económicamente indigentes del país se abra la oportunidad a la clase media tener servicios médico-hospitalarios que hoy se le hace imposible obtener. Hacia este propósito va encaminada esta medida.

Decrétase por la Asamblea Legislativa de Puerto Rico:

Artículo 1.—Autorización para utilizar hospitales o centros de salud en forma experimental.

Se autoriza al Secretario de Salud a utilizar hospitales y centros de salud en no más de cinco municipios de Puerto Rico en forma experimental a los fines de ofrecer servicios médico-hospitalarios a todos los ciudadanos de esas comunidades. Al determinar los pueblos donde se ha de realizar el experimento autorizado por esta ley, el Secretario de Salud deberá tomar en consideración el ingreso per cápita y por familia de la población, el número de médicos disponibles por habitantes, la disponibilidad de camas en las facilidades a ser utilizadas y la experiencia en cuanto a la utilización de estas camas. En ningún

caso se podrá realizar este experimento en un municipio por un término mayor de tres años.

Artículo 2—Uso de facilidades de salud por personas de todas las condiciones económicas.

Los hospitales y centros de salud que utilice el Secretario de Salud en virtud de las disposiciones de esta ley podrán ser usados por todas las personas de la comunidad, independientemente de su condición económica; disponiéndose que se cobrará a las personas cuyos recursos económicos les permitan pagar directamente o por medio de un seguro médico la totalidad o la parte del costo de los servicios de salud que reciban en dichas instituciones. Aquellas personas que por su condición económica sean considerados indigentes, tendrán prioridad en el servicio y en el uso de las facilidades, sobre aquellas personas que contando con recursos pueden utilizar facilidades médicas privadas.

Artículo 3—Convenios con asociaciones y agencias e instrumentalidades para prestar servicios a asegurados.

Se autoriza al Secretario de Salud a contratar con las asociaciones y corporaciones que ofrecen servicios de seguros médico-hospitalarios para que los asegurados de éstas usen las facilidades de salud que se operen en virtud de esta ley en las mismas condiciones que usarían hospitales privados. El Secretario de Salud queda además facultado a contratar con cualquier agencia o instrumentalidad gubernamental para que las personas con derecho a servicios médico-hospitalarios hagan uso de dichas facilidades.

Artículo 4—Autorización para obtener seguros médicos en beneficio de ciudadanos.

El Secretario de Salud, queda, además, autorizado a contratar con asociaciones o corporaciones que ofrecen seguros médico-hospitalarios para asegurar ciudadanos cuyo cuidado médico sea total o parcialmente responsabilidad pública dentro de los pueblos donde se lleve a cabo este experimento.

Artículo 5—Operación y Administración.

Para llevar a cabo el propósito de esta ley, el Secretario de Salud puede delegar, mediante convenio, la operación y administración de estas facilidades hospitalarias en asociaciones de fines no pecuniarios, o en juntas de gobierno en las cuales estén debidamente representadas la comunidad y las entidades profesionales interesadas en la prestación de servicios de salud.

Artículo 6—Normas de Administración y Operación—Reglamentos

El Secretario de Salud queda facultado para establecer las normas y reglamentos para la administración y operación de estas facilidades, incluyendo lo relativo a la práctica privada del personal médico gubernamental que preste sus servicios en dichas facilidades de salud, y la regulación de los ingresos correspondientes.

Artículo 7—Informe sobre el estudio del experimento en los servicios de salud del Estado Libre Asociado.

El Secretario de Salud informará a la Asamblea Legislativa y al Gobernador sobre la experiencia obtenida en la operación de estas facilidades a tenor con el experimento aquí autorizado al expirar el término durante el cual se llevó a cabo en cada municipio.

Artículo 8—Financiamiento.

Los fondos recaudados por concepto de pago por estos servicios en aquellos hospitales o centros de salud que el Departamento opere directamente mediante esta ley se depositarán en una cuenta especial que el Secretario utilizará para contribuir al financiamiento de la operación autorizada por esta ley.

Artículo 9—

Para los efectos de esta ley, quedará sin efecto cualquier ley o disposición de ley que esté en conflicto con ésta, o que limite en alguna forma la facultad que se confiere al Secretario para poner en ejecución esta ley en los municipios que se seleccionen para llevar a cabo el estudio.

Artículo 10—Vigencia.

Esta ley empezará a regir 90 días después de su aprobación y estará en vigor por un período de cinco (5) años, a partir de su vigencia.

Ley Núm. 56

Aprobada en 21 de junio de 1969

Para establecer un sistema integrado de asistencia médico-hospitalaria en el Estado Libre Asociado de Puerto Rico, dentro del cual todo individuo, independientemente de su posición económica, raza, color, origen, religión o credo político, podrá solicitar y recibir asistencia médico-hospitalaria de cualquier persona, agencia, organización e institución autorizada por ley para prestar tal servicio dentro del sistema.

Exposición de Motivos

Puerto Rico, en proporción a su extensión territorial, tiene recursos públicos y privados para el fomento, mantenimiento y la conservación de la salud de los puertorriqueños, comparables en cuanto a su cantidad, variedad y calidad con recursos similares existentes

en los países más avanzados del mundo. A pesar de ello, estos recursos no están integrados en un sistema capaz de brindarle a todo puertorriqueño, servicios de salud comprensivos y adecuados en cantidad, calidad, variedad y duración. Mientras tanto, estos recursos continúan desarrollándose y multiplicándose por caminos separados, faltos de una filosofía de servicio en común, y en un ambiente preñado de competencia y carente de orden y eficiencia.

Ha llegado el momento de ofrecer una fórmula que permita a nuestros recursos de la salud, privados y públicos, formar parte de un sistema capaz de absorber y utilizar los conocimientos y técnicas de la medicina moderna, para producir y poner a la disposición de todo puertorriqueño su producto: servicios comprensivos de salud.

La integración de estos recursos de la salud en un solo sistema se convierte en un asunto de vital urgencia ya que, a partir del 1 de julio de 1972 y de acuerdo con las disposiciones de la Sección 1902(a) (23) de la Ley de Seguro Social de Estados Unidos, a los puertorriqueños que sean beneficiarios de servicios de salud bajo el Título XIX de esta ley, se les tiene que garantizar el derecho a solicitar y obtener estos servicios de cualquier persona o institución autorizada por ley a prestarlos dentro y fuera del Estado Libre Asociado de Puerto Rico. Para dar cumplimiento a esta disposición de ley, es necesario hacer modificaciones a la política pública con relación a la salud del pueblo y efectuar una reorganización gradual del financiamiento, funcionamiento y administración de todos los recursos de salud en Puerto Rico.

Decrétase por la Asamblea Legislativa de Puerto Rico:

Sección 1. Se autoriza al Secretario de Salud a utilizar los hospitales, centros médicos, centros de salud, casas de salud, dispensarios, clínicas y otras instituciones de salud propiedad del Estado Libre Asociado y de sus municipios para brindar asistencia médico-hospitalaria de la misma cantidad, variedad y calidad para todo individuo, independientemente de su condición económica, raza, color, origen, religión o credo político.

El Secretario de Salud establecerá, con el asesoramiento del Director del Negociado de Presupuesto y de la clase médica, dental y paramédica de Puerto Rico, los procedimientos y sistemas administrativos necesarios para:

A) Determinar y fijar el costo razonable de los servicios de asistencia médico-hospitalaria en todas las instituciones de salud, propiedad del Estado Libre Asociado de Puerto Rico y sus municipios.

B) El cobro parcial o total, según lo requiera cada caso, del costo razonable, según fijado para cada institución de salud, de los servicios de asistencia médico-hospitalaria ofrecidos a todo individuo o familia cuyo ingreso anual y otros recursos resulte ser mayor que el establecido por los Secretarios de Salud y de Servicios Sociales para reconocer individuos o familias como elegibles para solicitar y recibir estos servicios con cargo a fondos públicos, o que posean algún seguro de salud.

Sección 2. El Secretario de Salud, con el asesoramiento del Secretario de Servicios Sociales, establecerá normas de aplicación similar a todo individuo o familia para determinar y promulgar los niveles de ingreso anual y otros recursos económicos bajo los cuales un individuo o familia serían certificados como elegibles para solicitar y recibir asistencia médico-hospitalaria en y fuera de las instituciones de salud del Estado y sus municipios, con cargo a fondos públicos. Esta certificación de elegibilidad deberá tramitarse mediante procedimientos administrativos rápidos, sencillos y que protejan los mejores intereses del individuo o familia solicitante. Se hará una revisión anual de los recursos bajo los cuales todo individuo o familia obtiene esta certificación.

Sección 3. El Secretario de Salud habrá de establecer, con el asesoramiento de la Junta Estatal de Salud, un sistema de auditoria médica que permita evaluar anualmente la cantidad, variedad, utilización y calidad de los servicios de asistencia médico-hospitalaria ofrecidos al público en cada institución de salud.

Sección 4. En consulta con el Director de la Oficina del Negociado de Presupuesto, el Secretario de Salud implantará los procedimientos administrativos para la contabilidad, depósito y utilización de fondos recaudados en cada institución de salud, propiedad del Estado y sus municipios por concepto del cobro del costo razonable de servicios dados a individuos o familias clasificadas bajo la Sección 2 de esta ley, como no elegibles para recibir éstos con cargo a fondos públicos.

Los fondos recaudados bajo esta sección serán utilizados, sujeto a las prioridades que establezca el Secretario de Salud, en el mejoramiento de los sueldos del personal y de los servicios y facilidades de salud.

El Secretario podrá contratar con los municipios la aportación de éstos al pago de los servicios dados a los residentes de la municipalidad tanto en los

hospitales del Estado como en los privados. Se acreditará como aportación del municipio una fracción proporcional de las sumas recaudadas dentro de su límite territorial por servicios dados en los hospitales propiedad del Estado a los usuarios que pudieron pagar todo o parte del servicio.

Sección 5. Los planes de seguros de servicios médico-hospitalarios y compañías de seguros dedicadas a la venta de seguros médico-hospitalarios en el Estado Libre Asociado de Puerto Rico, vendrán obligados a pagar al Estado y a sus municipios, según procedimientos que establezca el Secretario de Salud, el costo razonable de los servicios prestados a sus asegurados en instituciones de salud propiedad del Estado y sus municipios.

Sección 6. El Fondo del Seguro del Estado, así como cualquier otra instrumentalidad del gobierno del Estado Libre Asociado de Puerto Rico y sus municipios, que tengan establecidos o que establezcan planes de servicios de salud para sus empleados, vendrán obligados a pagar el costo razonable de los servicios de asistencia médico-hospitalaria prestados a sus empleados en instituciones de salud propiedad del Estado y sus municipios.

Sección 7. Se faculta al Secretario de Salud a establecer las normas y reglamentos necesarios para la administración y operación de los hospitales y centros de salud propiedad del Estado. Podrá, mediante convenio, delegar la operación y administración de los hospitales y centros de salud propiedad del Estado en asociaciones de fines no pecuniarios, corporaciones de profesionales u otras agrupaciones interesadas en brindar servicio de salud a la comunidad.

Sección 8. Todo médico y todo dentista autorizado a ejercer su profesión en Puerto Rico y en el ejercicio privado de ésta, podrá cobrar el costo razonable de los servicios profesionales que brinde a pacientes en instituciones de salud propiedad del Estado y sus municipios cuando dichos pacientes no sean elegibles para recibir esos servicios con cargo a los fondos del Estado o del municipio.

Los servicios dados a pacientes indigentes les serán pagados por el Estado. El cobro de estos servicios, en ambos casos, se hará sujeto a reglamentación que para este fin establezca el Secretario de Salud. El costo razonable de estos servicios profesionales será determinado por los propios médicos y dentistas, en acuerdo con el Secretario de Salud, tomando en consideración los valores usuales y prevalecientes en la comunidad y los mejores intereses de los pacientes.

Los médicos y dentistas que pertenezcan a las Facultades Médicas de las instituciones de salud propiedad del Estado y sus municipios podrán ofrecer estos servicios, siempre y cuando acepten el correspondiente nombramiento bajo reglamentación promulgada al efecto por el Secretario de Salud, definiendo las funciones, responsabilidades y derechos de estos profesionales, en su capacidad de miembros de dichas facultades médicas.

Sección 9. Se autoriza al Secretario de Salud a formalizar acuerdos con médicos y dentistas en el ejercicio privado de su profesión, con hospitales, centros médicos, centros de salud, casas de salud, dispensarios, clínicas, agencias de servicio farmacéutico y otras instituciones de salud privadas, para que puedan brindar asistencia médico-hospitalaria a individuos o familias certificadas elegibles para recibir dicha asistencia con cargo a fondos públicos según se dispone en esta ley.

Sección 10. Los servicios de asistencia médico-hospitalaria autorizados bajo la Sección 9 de esta ley se ofrecerán en igualdad de condiciones y serán de la misma calidad que los ofrecidos a los pacientes privados de las personas o instituciones que formalicen acuerdos con el Secretario de Salud.

Sección 11. Toda persona o institución que formalice un acuerdo con el Secretario de Salud para ofrecer y brindar servicios de asistencia médico-hospitalaria a individuos o familias elegibles para recibir éstos con cargo a fondos públicos del Estado y sus municipios, cumplirá los siguientes requisitos:

A) Establecerá un sistema interno de auditoria fiscal que permita al Secretario de Salud o a su representante verificar el costo razonable de los servicios de asistencia médico-hospitalaria que habrán de ofrecerse a individuos o familias elegibles a recibirlos con cargo a fondos públicos del Estado y sus municipios.

B) Establecerá un sistema interno de auditoria médica aceptable al Secretario de Salud y que permita a éste o a su representante verificar, por lo menos una vez al año, la cantidad, variedad, duración, utilización y calidad de los servicios de asistencia médico-hospitalaria brindados a individuos o familias elegibles a recibirlos con cargo a fondos públicos del Estado y sus municipios.

C) Someterá anualmente al Secretario de Salud los informes que le sean requeridos relacionados con sus servicios y se compromete a no requerir de sus pacientes pagos adicionales por los servicios rendidos con cargo a los fondos públicos.

D) Se compromete a reclamar a planes de seguros de servicios de asistencia médico-hospitalaria, el

costo razonable de los servicios cubiertos por la póliza del individuo asegurado con estos planes, cuando dicho individuo asegurado también sea elegible para recibir estos servicios con cargo a fondos públicos del Estado y sus municipios. En estos casos, el Secretario de Salud será solo responsable de pagar aquella porción del costo razonable de los servicios no cubiertos por la póliza del asegurado.

Sección 12. Se autoriza al Secretario de Salud a proceder por etapas en el desarrollo del sistema que provee esta ley. Las etapas pueden ser a base de grupos poblacionales o regionales o por servicios, según su mejor criterio, en forma definitiva o experimental, de acuerdo a la Ley núm. 81 del 31 de mayo de 1967, pero toda la población puertorriqueña debe estar acogida a dicho sistema cuando entren en vigor en Puerto Rico las disposiciones de la Ley Federal del Seguro Social, Título XIX, el primero de julio de 1972.

Sección 13. Cualquier ley o disposición de ley en conflicto con ésta, queda por la presente derogada.

Sección 14. Esta ley empezará a regir el primero de julio de 1969.

REGISTRO DE HOSPITALES Y CASAS DE SALUD *

Todo hospital y toda casa de salud en Puerto Rico deberá poseer una licencia otorgada por el Departamento de Salud que le autoriza a funcionar por un año fiscal o el remanente del año, un cierto número de camas de acuerdo con la capacidad normal que permite el área de piso del establecimiento, según se dispone por reglamentación. Sin embargo, el número de camas puede variar durante el año por situaciones tales como, mayor o menor demanda de servicios, escasez de personal o recursos, ampliaciones y/o remodelaciones, etc., que pueden afectar el número de camas con las cuales funciona un hospital o una casa de salud a través del año. El número de camas indicado incluye las camas conformes y las no conformes. Camas conformes son aquellas camas en una facilidad cuya planta física llena los requisitos de la Ley Núm. 101 del 26 de junio de 1965, según enmendada, y las Reglas, Reglamentaciones y Normas para la Construcción, Funcionamiento y Mantenimiento de Hospitales en Puerto Rico establecidas conforme a esta ley.

Toda Licencia está sujeta a renovación a principios de cada año fiscal. Están autorizados a funcionar durante el año fiscal 1969-70 ciento treinta y ocho (138) hospitales, de los cuales 50 funcionan con licencia regular y 88 con licencia provisional. Hay trece (13) casas de salud, de las cuales tres (3) poseen licencia regular y diez (10) licencia provisional.

Una licencia regular se otorga cuando un hospital o casa de salud llena sustancialmente los requisitos mínimos de planta física y de funcionamiento de acuerdo con la Ley Núm. 101 del 26 de junio de 1965, según enmendada, y la reglamentación vigente.

Este registro contiene los nombres de cada uno de los hospitales y casas de salud autorizados a funcionar, los cuales aparecen agrupados por municipios. Se incluye además algunos datos adicionales relativos a éstos.

El nombre del director médico y del administrador es el más reciente que se tiene conocimiento.

Las abreviaturas que se usan en este Registro se explican como sigue:

SERVICIOS MEDICOS

Gen.	General	E.L.T.	Enfermedades y Lesiones del Trabajo
T.B.	Tuberculosis	O.	Oftalmología
M.	Mental	C.	Cáncer
Ort.	Ortopedia	Der.	Dermatología
		R.F.	Rehabilitación Física

CONTROL

E.	Estado	C.P.	Corporación Privada
M.	Municipio	C.N.L.	Corporación No Lucrativa
I.	Iglesia	S.	Sociedad
Ind.	Individuo	F.S.E.	Fondo del Seguro del Estado
E-M	(Estado y Municipio)	S.N.L.	Sociedad No Lucrativa

---

* - *Décimooctava Edición - Oficina de Certificación y Licencia de Facilidades de Salud - Departamento de Salud.*

OTRAS ABREVIATURAS Y SIGNOS

R	Licencia Regular
——	No hay datos o se desconoce.
*	Proyectos construídos total o parcialmente con participación federal.
○	Acreditados por la Comisión Conjunta para Acreditación de Hospitales.
Δ	Aprobado para participar en el Programa "Medicare" (Título XVIII), de la Ley de Seguro Social Federal.
=	Aprobado para participar en el Programa "Medicare", servicio de emergencia nada más.

Confiamos que como en años anteriores, este registro sea útil a los hospitales, a las casas de salud, a las entidades gubernamentales y no gubernamentales y a la comunidad en general.

Ernesto Colón-Yordán, MD
Secretario de Salud

Kenneth Ramírez-Smith, MD, MPH
Director
Oficina de Certificación y Licencia
de Facilidades de Salud

San Juan, Puerto Rico
Julio 1969

Estado Libre Asociado de Puerto Rico
Commonwealth of Puerto Rico
DEPARTAMENTO DE SALUD
DEPARTMENT OF HEALTH
Oficina - Certificación y Licencia de Facilidades de Salud
Office - Certification and Licensure of Health Facilities
REGISTRO DE HOSPITALES
HOSPITALS REGISTRY
Julio de 1969
July 1969

Nombre y Dirección del Hospital	Número de Licencia	Capacidad en Camas	Tipo de Servicio	Control	Director Médico	Administrador o Supervisor
ADJUNTAS						
Δ Centro de Salud	7R	24	Gen.	E.	Dr. Rosendo Martínez	Nicasio Sepúlveda Santiago
AGUADA						
Δ * Centro de Salud	8R	12	Gen.	E.	Dr. Buenaventura López Flores	Anselmo Cordero Acevedo
AGUADILLA						
○Δ Hospital de Distrito	1	280	Gen.	E.	Dr. Modesto Rodríguez Avilés (Int.)	Ketty Ruíz Ramírez
Clínica Zamora, Inc.	81	16	Gen.	C.P.	Dr. Hiram Luigi	----
AGUAS BUENAS						
Δ * Centro de Salud	9	20	Gen.	E.	Dr. Regino Flores López	Basilio Ramos Torres
AIBONITO						
= Hospital Municipal	53	10	Gen.	M.	Dr. Gilberto Baltazar	----
Δ* Mennonite General Hospital	82R	50	Gen.	I.	Dr. Donald D. Graber	Lawrence Greaser
AÑASCO						
Δ Centro de Salud	10	16	Gen.	E.	Dr. Luis Franqui Figueroa (Int.)	Rosalina Toro de Aponte
ARECIBO						
Δ Hospital Municipal "Dr. M. Figueroa"	54	128	Gen.	E-M.	Dr. Jackie H. Coker	Angel Luis Lugo
○Δ Hospital de Distrito	2	280	Gen.	E.	Dr. Heriberto Domenech Muñoz	Antonio Rivera Pérez
= Hospital El Buen Pastor	84	44	Gen.	Ind.	Dr. José M. Rodríguez Quiñones	Ana R. de Rodríguez
Δ Hospital Dr. Susoni, Inc.	83	74	Gen.	C.P.	Dr. Antonio H. Susoni	Efraín Matos Vargas

Name and Address of Hospital	License Number	Bed Capacity	Type of Service	Control	Medical Director	Administrator or Supervisor

Nombre y Dirección del Hospital	Número de Licencia	Capacidad en Camas	Tipo de Servicio	Control	Director Médico	Administrador o Supervisor
ARROYO						
= Hospital Municipal	55	44	Gen.	M.	Dr. Neftalí Rodríguez	Héctor S. González (Alcalde)
Δ Hospital Lafayette	85	88	Gen.	S.	Dr. Eduardo R. Pérez	---
BARCELONETA						
Hospital Municipal "B. Llenza Feliú"	56	19	Gen.	M.	Dr. José Torres Alvarado (Int.)	Tomasa Reyes Laureano
BARRANQUITAS						
Δ * Centro de Salud	11	11	Gen.	E.	Dr. Sergio López Correa	José G. Marrero Luna
BAYAMON						
Δ * Centro de Salud	12	88	Gen.	E.	Dr. Juan Luis Rodríguez Rodríguez	Carmen M. Vega de la Rosa
○Δ * Hospital Dr. Alejandro Ruiz Soler	126R	871	T. B.	E.	Dr. Guillermo Acosta	Agustín Díaz
Δ Hospital Hermanos Meléndez, Inc.	86	64	Gen.	C.P.	Dr. Andrés S. Meléndez	Julio César Galarcé
○Δ Hospital Hato Tejas, Inc.	131R	246	M.	C.P.	Dr. Ramón Fernández Marina	Dr. Eduardo D. Maldonado Sierra
CABO ROJO						
= Hospital Municipal	57	15	Gen.	M.	Dr. Dixon Ramírez	Pedro Amílcar Pabón Matos
CAGUAS						
Δ Hospital Municipal "Dr. G. Jiménez Sanjurjo	58	87	Gen.	M.	Dr. Jaime O. Rivera Rivera	Rosa María Esterás Macías
Δ Hospital San Rafael	87R	81	Gen.	C.P.	Dr. Rex J. Bunker	Rafael Bruno Rivera
CAMUY						
= Centro de Salud	13R	22	Gen.	E.	Dr. Víctor M. Figueroa Mújica	Bienvenido Rivera Camacho
CAROLINA						
Δ Hospital Municipal	59	32	Gen.	M.	Dr. José Alvarez Alvarez	Dalila Pérez de Nieves
CATAÑO						
= * Centro de Salud	14	22	Gen.	E.	Dr. Job Andújar (Int.)	Mauricio Rodríguez Castrillón
CAYEY						
Δ * Centro de Salud	15R	42	Gen.	E.	Dr. Jaime M. Vidal	Narciso Collazo Berríos
Δ Hospital de Tuberculosis	123R	400	T. B.	E.	Dr. José Vázquez Sanmartín	Hiram Yunqué Martínez
Δ Clínica Font, Inc.	88	46	Gen.	C.P.	Dr. Radamés Muñíz	Emma M. de Muñíz
CEIBA						
Δ * Centro de Salud	16	20	Gen.	E.	Dr. Rodolfo Lorenzo	Tomás Vega Matta

Nombre y Dirección del Hospital	Número de Licencia	Capacidad en Camas	Tipo de Servicio	Control	Director Médico	Administrador o Supervisor
CIALES						
Hospital Municipal	60	13	Gen.	M.	Dr. Ramón Colom Coll	Ismael Nazario Morales (Alcalde)
CIDRA						
Δ * Centro de Salud	17R	22	Gen.	E.	Dr. Manuel Morales Morales	Antonio Rivera Vázquez
COAMO						
Δ * Centro de Salud "Dr. Dámaso Talavera"	18R	26	Gen.	E.	Dr. Ramón Cuevas Natal	Luis Raúl Rodríguez González
COMERIO						
Δ * Centro de Salud	19R	23	Gen.	E.	Dr. Leovigildo Reyes Reyes	Hipólito Reyes Artache
COROZAL						
ΔCentro de Salud	20	20	Gen.	E.	Dr. Alfredo Yapor Elías	Concepción Rojas Sostre
DORADO						
=Centro de Salud	21	14	Gen.	E.	Dr. Clive A.Walter O'Neill	Lupercio Oquendo Ilarraza
FAJARDO						
Hospital Municipal "Luis M. Cintrón"	61	26	Gen.	M.	————	Carmen Casillas
○ΔHospital de Distrito	4	280	Gen.	E.	Dr. William H. Stoddard	Orlando Serra
ΔClínica Fajardo	139	31	Gen.	C.P.	Dr. Luis D. Lebrón	Fernando Germán
ΔDr. Gubern's Hospital	91	19	Gen.	C.P.	Dr. Felipe A. García González	Monserrate Gubern de García
GUANICA						
ΔHospital Municipal "San José"	62	25	Gen.	M.	Dr. Neftalí Sallaberry	Félix J. Muñoz Vélez
=Hospital de la Central Guánica	89	17	Gen.	C.P.	Dr. Abelardo Menay Jusino	Jorge Maltés
GUAYAMA						
Δ* Centro de Salud	22R	64	Gen.	E.	Dr. José M. Dalmasy Montalvo	Eduardo González Delgado
Δ* Clínica Santa Rosa, Inc.	92R	35	Gen.	C.N.L.	Dr. Jorge García Guzmán	Antonio Pomales Santori
GUAYANILLA						
Δ * Centro de Salud "Isaías Rodríguez López"	23	20	Gen.	E.	Dr. Carlos A. Oliva Suárez	Noé Alicea Rodríguez
GUAYNABO						
Δ * Centro de Salud	24	22	Gen.	E.	Dr. Francisco A. Suárez	Felipe Vélez
Hospital del Niño	128	45	Ort. y T.B.Osea	S.N.L.	Dr. Julio Lergier	Rosario Nieves de Rodríguez
GURABO						
=Hospital Municipal	63	17	Gen.	M.	Dr. Enrique Moreto Ricardo	Jesús Figueroa Cuevas
HATILLO						
Δ * Centro de Salud "Dr.Luis Brusi Alvarez"	25R	20	Gen.	E.	Dr. Armando Saavedra	David Santiago Velázquez

Nombre y Dirección del Hospital	Número de Licencia	Capacidad en Camas	Tipo de Servicio	Control	Director Médico	Administrador o Supervisor
HORMIGUEROS						
△* Centro de Salud	26R	12	Gen.	E.	Dr. Jorge Christian Mejías	Luz C. Mojica de Rodríguez
HUMACAO						
△* Centro de Salud	27R	54	Gen.	E.	Dr. Francisco M. Vélez Mercado	Rafael A. Limardo Colón
○△ Clínica Oriente, Inc.	97R	62	Gen.	C.P.	Dr. Juan L. Balaguer	Aníbal Arroyo
○△ Hospital Font Martelo, Inc.	96R	52	Gen.	C.P.	Dr. Julio Armando Ortíz	Sandra J. Yumet
○△ Hospital Ryder Memorial, Inc.	98R	69	Gen.	C.N.L.	Dr. John A. Smith	Saturnino Peña Flores
ISABELA						
△ Centro de Salud	28	22	Gen.	E.	Dr. Francisco Vélez Lugo (Int.)	Francisco H. Abreu Abreu
JAYUYA						
△* Centro de Salud	29	6	Gen.	E.	Dr. Teófilo Beato Muñoz	José A. Rivera Rodríguez
JUANA DIAZ						
△* Centro de Salud	30	16	Gen.	E.	Dr. Manuel Casanova González	Guillermo Ríos Santiago
JUNCOS						
= Hospital Municipal "Dr. Agustín Mujica Dueño"	64	28	Gen.	M.	Dr. Jorge A. Reyes Reyes	Jacobo Algarín
LAJAS						
△* Centro de Salud	31	20	Gen.	E.	Dr. Walter F. Irizarry Morales	Edwin F. Pabón Tur
LARES						
= Hospital Municipal	65	21	Gen.	M.	Dr. Jorge E. Sánchez Rosado	Concepción Quiles Sánchez
△* Castañer General Hospital	99R	33	Gen.	I.	Dr. Dohn R. Kruschwitz	Ellis J. Schenk
LAS MARIAS						
△ Centro de Salud	32	4	Gen.	E.	Dr. Juan G. Valdés (Int.)	Isabel Bernal Casiano
LAS PIEDRAS						
△ Centro de Salud	33	19	Gen.	E.	Dr. José C. Rivera Arzola	Francisco Rodríguez Velázquez
LOIZA						
= Hospital Municipal	66	19	Gen.	M.	Dr. Ramón A. Bassa	Cecilio Casanova Velázquez
LUQUILLO						
= Hospital Municipal	67	17	Gen.	M.	Dr. William Cruz Pumarejo	Lydia Hilda García Sorriano
MANATI						
Hospital Municipal	68	38	Gen.	M.	Dr. Francisco Comas Rosado	Carmen Pérez Serrano
△ Hospital Doctor's Center, Inc.	100	11	Gen.	C.P.	Dr. Antonio M. Abreu Román	Dr. Pedro Blanco Lugo
= Hospital San Agustín	101	12	Gen.	Ind.	Dr. Nicolás Méndez	Ana L. de Méndez

Nombre y Dirección del Hospital	Número de Licencia	Capacidad en Camas	Tipo de Servicio	Control	Director Médico	Administrador o Supervisor
MARICAO						
Δ * Centro de Salud	34	7	Gen.	E.	Dr. Samuel Clark	Nomy Martell de Jiménez
MAUNABO						
= Hospital Municipal	69	11	Gen.	M.	Dr. Andrés López de Victoria	Eustasio José Montes Alvarez
MAYAGUEZ						
Δ Hospital Municipal "San Antonio"	70R	116	Gen.	M.	Dr. Francisco J. Echegaray	———
Δ Hospital "Inés Luisa Lassise de Marín"	124	152	T. B.	E.	Dr. Rafael Díaz Martínez	Eduardo Santiago Montañez
= Clínica Dr. Perea, Inc.	102R	102	Gen.	C.P.	Dr. Nelson Perea	Virginia Pérez Vda. de Fernández
○Δ * Hospital Bella Vista	103R	82	Gen.	I.	Dr. C. M. Donaldson	Royce C. Thompson
Δ Clínica Española, Inc.	104	26	Gen.	C.P.	Dr. Emigdio Iñigo	Sor Carmen Hernández
MOCA						
Δ * Centro de Salud	35	22	Gen.	E.	Dra. María A. Díaz Martínez	Angel Vélez Martínez
MOROVIS						
= Hospital Municipal	71	8	Gen.	M.	Dr. Mamerto Santos	Ermelinda Rivera Quintero
NAGUABO						
= Hospital Municipal	72	22	Gen.	M.	Dr. Hernán G. Chico	Felipe Hernández Rodríguez
NARANJITO						
Δ Centro de Salud	36	8	Gen.	E.	Dr. Adonirám Nieves	Leoncio D. López Santiago
OROCOVIS						
Δ Centro de Salud	37	20	Gen.	E.	Dr. Eulogio Rodríguez González	———
PATILLAS						
Δ * Centro de Salud	38R	22	Gen.	E.	Dr. Edicto López Ortíz	Carmelo A. Rivera Defendini
PEÑUELAS						
Δ * Centro de Salud "Dr. Jaime L. Costas"	39	20	Gen.	E.	Dr. Wallace Colberg Comas	Luis A. García Rivera
PONCE						
Δ Hospital Municipal "Valentín Tricoche"	73	137	Gen.	M.	Dr. Gilberto Jusino	José L. Berlingeri Torres
○Δ * Hospital de Distrito "Dr. José N. Gándara"	5R	490	Gen.	E.	Dr. Víctor M. Rosario	Ramón E. Defendini
Δ Hospital de Tuberculosis	125	216	T. B.	E.	Dr. Miguel F. Godreau	Arcadio Torres Padilla
○Δ Clínica Dr. Pila	105R	130	Gen.	C.N.L.	Dr. Jaime Costas Durieux	Antonia Ramos
○Δ Hospital Episcopal "San Lucas"	107R	110	Gen.	I.	———	Jaime Maldonado Rivera
Δ Clínica Oncológica	134R	23	C.	S.N.L.	Dr. Hamlet Hazim	Honoria Quiñones
○Δ Hospital Santo Asilo de Damas	106R	153	Gen.	S.N.L.	Dr. Carlos Quilinchini	Francisco Barnés
= * Hospital de Siquiatría	132	334	M.	E.	Dr. Reinaldo A. Geerken	Serafín Santiago Maldonado

Nombre y Dirección del Hospital	Número de Licencia	Capacidad en Camas	Tipo de Servicio	Control	Director Médico	Administrador o Supervisor
QUEBRADILLAS						
Δ* Centro de Salud	40	20	Gen.	E.	Dr. Víctor L. Bienes Jiménez	Rafael Pérez Santalíz
RINCON						
Δ Centro de Salud "Dr. Manuel García Quevedo"	41	7	Gen.	E.	Dr. Rafael Benavides (Int.)	Rosa María Bayrón Fussá
RIO GRANDE						
Δ Centro de Salud	42	16	Gen.	E.	Dr. Juan Ramón Parrilla González	Francisco Meléndez Franco
SABANA GRANDE						
= Hospital Municipal	75	21	Gen.	M.	Dr. Raúl A. Rivera Roldán	Nélida Nazario de Rivera
SALINAS						
= Hospital Municipal	76	38	Gen.	M.	Dr. Lázaro Fco. González Toro	————
Δ Hospital Aguirre	110	29	Gen.	C.P.	Dr. Hiram R. Soler Favale	————
SAN GERMAN						
Δ * Centro de Salud	43R	42	Gen.	E.	Dr. Diego Loinaz Garrido	Angel Acevedo
○Δ * Hospital de la Concepción	111R	97	Gen.	I.	Dr. Luis J. Torres Oliver	Eliseo Borrero
SAN JUAN (1)						
○Δ Instituto Oftálmico de Puerto Rico, Inc.	133R	48	O.	C.P.	Dr. Rafael O. Fernández	Carmen Echandi
(Santurce)						
Δ Hospital Sagrado Corazón	112	68	Gen.	C.P.	Dr. Héctor Rodríguez Martínez	José A. Berrocal
Δ Hospital General San Carlos, Inc.	113R	84	Gen.	C.P.	Dr. Ricardo Rengel	Robert H. Waymouth
○Δ Professional Hospital, Inc.	114R	202	Gen.	C.P.	Dr. Basilio Dávila	Jesús López García
○Δ Hospital Pavía	115R	82	Gen.	C.P.	Dr. Manuel Pavía Fernández	Manuel Pavía Villamil
= Woman's Hospital	116	15	Gen.	Ind.	Dr. Carlos F. Rivera Lugo	—————
○Δ * Presbyterian Community Hospital, Inc.	117R	179	Gen.	C.N.L.	————	Josepth K. Summers
○Δ Hospital Mimiya, Inc.	118R	80	Gen.	C.P.	Dr.Ramón M. Suárez Benítez	Gladys M. Benítez
○Δ Doctors Hospital	119R	134	Gen.	C.P.	Dr. Juan J. Mimoso	César Corretjer
○Δ Hospital San Jorge	120R	91	Gen.	C.P.	Dr. Eduardo Montilla	Arturo A. Plard
(Hato Rey)						
Δ Hospital de Nuestra Señora de la Guadalupe, Inc.	93	52	Gen.	C.P.	Dr. Edgar Stella	Josué M. Colón
○Δ * Hospital Auxilio Mutuo	94R	150	Gen.	S.N.L.	Dr. José R. González	Efraín Flores Gallardo
○Δ Clínica Dr. E. Fernández García, Inc.	127R	158	T.B. y Otras Enfs.del Pecho	C.P.	Dr. David E. García	Dr. Eugenio Fernández Cerra

(1) Los hospitales en el Municipio de San Juan están enumerados por sub-divisiones geográficas dentro de la ciudad.
Hospitals within the municipality of San Juan are listed according to the geographical sub-division of the city.

Nombre y Dirección del Hospital	Número de Licencia	Capacidad en Camas	Tipo de Servicio	Control	Director Médico	Administrador o Supervisor
○△ Hato Rey Psychiatric Hospital, Inc.	130R	345	M.	C.P.	Dr. Fernando J. Cabrera	Dr. Jaime Serra Chavarry
○△ * Hospital del Maestro	95R	130	Gen.	C.N.L.	Dr. Manuel M. Baralt	Sigifredo Martínez
(Río Piedras)						
○△ Hospital de Distrito Universitario	3	320	Gen.	E.	Dr. Manuel Marina	Juan Rivera Rivera
Hospital Penitenciaría Estatal	6	129	Gen.	E.	Dr. Jorge U. Crespo	Cap. Gerardo Delgado
○△ Hospital Municipal de San Juan "Dr. Rafael López Nussa"	74R	642	Gen.	M.	Dr. Luis A. Díaz Bonet	Jesús M. Rodríguez Hernández
△ Hospital Doctores Hermanos Ramos Yordán, Inc.	108	28	Gen.	C.P.	Dr. Luis E. Ramos Yordán	Lenabelle S. Ramos Yordán
△ Hospital San Martín	109	38	Gen.	C.P.	Dr. Manuel Rodríguez Ema	————
○△ * Hospital de Siquiatría	129R	1140	M.	E.	Dr. David Caiseda	Antonio Sanz
○△ * Hospital "Dr. I. González Martínez"	135R	143	C.	C.N.L.	Dr. Oscar Costa Mandry	Gloria Campos
= Unidad Hospital - Centro de Rehabilitación	137	40	R. F.	E.	Dr. Máximo Levin	Luis A. Bonilla
Hospital Industrial	138R	282	Enfs. y Lesiones del Trabajo	E.(F.S.E.)	Dr. Ramón Rosa García	James S. Farrant
SAN LORENZO						
△ Hospital Municipal	77	12	Gen.	M.	Dr. Elfrén C. Martínez	Esteban Rodríguez
SAN SEBASTIAN						
△ * Centro de Salud "Dr. Miguel R. Cancio"	44	42	Gen.	E.	Dr. José H. Colón Morales	Eloisa Lebrón Rivera (Int.)
SANTA ISABEL						
= Hospital Municipal	78	25	Gen.	M.	Dr. Fernando Valdés	Efigenia Fontánez de Torres
TOA ALTA						
△ * Centro de Salud	45R	22	Gen.	E.	Dr. Humberto Guiot Sánchez	Jaime Morales Rodríguez
TOA BAJA						
△ * Centro de Salud	46	22	Gen.	E.	Dr. Victorico Salas Matos	Luz María Kuilan Santos
TRUJILLO ALTO						
△ Centro de Salud	47	16	Gen.	E.	Dra. Victoria Marcial de Gómez	Lucrecia Vega Rivera
Centro de Dermatología	136	38	Der.	E.	Dr. Víctor Torres	Visitación de Jesús Viera
UTUADO						
△ * Centro de Salud	48R	54	Gen.	E.	Dr. Orlando De Varona	José D. Sánchez
△ Clínica San Miguel	121	53	Gen.	C.P.	Dr. Ismael Vilar Porrata	Rubén Rodríguez
VEGA ALTA						
△ * Centro de Salud	49	10	Gen.	E.	Dr. Alberto Cura Marbes	José A. Aguilar Quintana
VEGA BAJA						
△ Centro de Salud	50R	26	Gen.	E.	Dr. Reinaldo H. Arana García (Int.)	————
= Clínica Sánchez Castaño, Inc.	122	53	Gen.	C.P.	Dr. José R. Casanova Díaz	Eduardo Aranda García

Nombre y Dirección del Hospital	Número de Licencia	Capacidad en Camas	Tipo de Servicio	Control	Director Médico	Administrador o Supervisor
VIEQUES Δ * Centro de Salud	51	21	Gen.	E.	Dra. Loyda Martínez de Burleson	Luis Ramos Santiago
VILLALBA = Centro de Salud	52	16	Gen.	E.	Dr. Rodolfo Caballero (Int.)	Orlando Hernández Figueroa
YABUCOA Hospital Municipal	79	33	Gen.	M.	Dr. Juan A. Larios	Ana M. Serrano de Burgos
YAUCO Δ * Hospital Municipal	80	41	Gen.	M.	Dr. Santiago L. Loyola	William Perazza Santiago

Estado Libre Asociado de Puerto Rico
Commonwealth of Puerto Rico
DEPARTAMENTO DE SALUD
DEPARTMENT OF HEALTH
Oficina - Certificación y Licencia de Facilidades de Salud
Office - Certification and Licensure of Health Facilities
REGISTRO DE CASAS DE SALUD
NURSING HOMES REGISTRY
Julio de 1969
July 1969

Nombre y Dirección de la Casa de Salud	Número de Licencia	Capacidad en Camas	Tipo de Servicio	Control	Director Médico	Administrador o Supervisor
AIBONITO						
* Rosario Belber	2	46	Niños	S.	----	Dra. Dolores M. Piñero (Pres. Junta de Directores)
ARECIBO						
Δ * Hospital de Distrito	10	70	Gen.	E.	Dr. César Rosa Febles	Antonio Rivera Pérez
FAJARDO						
Δ Santa Isidra	13	18	Gen.	C.P.	Dr. Felipe García González	Monserrate Gubern de García
HATO REY						
Δ * Auxilio Mutuo	6R	44	Gen.	S.	Dr. Joaquín Soler Bechara	Efraín Flores Gallardo
Hospital del Maestro	11	30	Gen.	S.	Dr. Manuel M. Baralt	Sigifredo Martínez
HUMACAO						
○Δ * Ryder Memorial Hospital Nursing Home	3R	38	Gen.	C.N.L.	Dr. John A. Smith	Saturnino Peña Flores
PONCE						
Δ * Dr. Pila	7	52	Gen.	C.N.L.	---	Antonia Ramos
RIO PIEDRAS						
Δ Hogar Carmelitano	12	47	Gen.	C.N.L.	Dra. Ana Géigel de Olivieri	Madre Benita Loza
* Centro Médico	1R	236	Gen.	E.	----	Luis A. Dávila
Rest Manor	5	24	Gen.	Ind.	----	P. Candice Caine
Δ Dr. Juan A. Pons	8	40	Gen.	M.	Dr. Víctor M. Rivera	Sor Teresa Duque
SAN JUAN						
Siervas de María	4	18	Gen.	I.	----	Sor Jovita Zabalegui
SANTURCE						
Δ San Vicente de Paul	9	27	Gen.	M.	Dr. César Ramos Munet	Sor Engracia Colón

Name and Address of Nursing Home	License No.	Bed Capacity	Type of Service	Control	Medical Director	Administrator or Supervisor

RESUMEN DE HOSPITALES DE PUERTO RICO AUTORIZADOS A FUNCIONAR DURANTE EL AÑO FISCAL 1969-70
SE INDICA CLASIFICACION, NUMERO Y CAPACIDAD DE CAMAS

Descripción		TOTAL		GUBERNAMENTALES		NO GUBERNAMENTALES	
		Número de Hospitales	Capacidad en Camas	Número de Hospitales	Capacidad en Camas	Número de Hospitales	Capacidad en Camas
Generales	Total	122	7435	80	4493	42	2942
Gubernamentales		80	4493				
Hospitales de Distrito		5	1650	5	1650		
Centros de Salud		46	1074	46	1074		
Penitenciaría Estatal		1	129	1	129		
Hospitales Municipales		28	1640	28	1640		
No Gubernamentales		42	2942			42	2942
Privados - Lucrativos		30	1754			30	1754
Privados - No Lucrativos		12	1188			12	1188
Especiales	Total	16	4511	9	3473	7	1038
Gubernamentales		9	3473				
Tuberculosis		4	1639	4	1639		
Mental		2	1474	2	1474		
Centro de Dermatología (Enfermedades de Hansen y otras)		1	38	1	38		
Unidad Hospital-Centro de Rehabilitación		1	40	1	40		
Industrial		1	282	1	282		
No Gubernamentales		7	1038				
Privados - Lucrativos		4	797			4	797
Tuberculosis		1	158			1	158
Oftalmología		1	48			1	48
Mental		2	591			2	591
Privados - No Lucrativos		3	241			3	241
Unidad Siquiátrica Hospital de la Concepción		—	30			—	30
Hospital del Niño (Ortopedia y T. B.Osea)		1	45			1	45
Cáncer		2	166			2	166
	Gran Total	138	11946	89	7966	49	3980

SUMMARY OF HOSPITALS IN PUERTO RICO AUTHORIZED TO FUNCTION DURING FISCAL YEAR 1969-70
CLASSIFICATION, NUMBER AND BED CAPACITY IS INDICATED

Description		TOTAL		GOVERNMENTAL		NO GOVERNMENTAL	
		Number of Hospitals	Bed Capacity	Number of Hospitals	Bed Capacity	Number of Hospitals	Bed Capacity
General	Total	122	7435	80	4493	42	2942
Governmental		80	4493				
District Hospitals		5	1650	5	1650		
Health Centers		46	1074	46	1074		
State Penitenciary Hospital		1	129	1	129		
Municipal Hospitals		28	1640	28	1640		
Non Governmental		42	2942			42	2942
Private - Profit		30	1754			30	1754
Private - Non Profit		12	1188			12	1188
Special	Total	16	4511	9	3473	7	1038
Governmental		9	3473				
Tuberculosis		4	1639	4	1639		
Psychiatric		2	1474	2	1474		
Dermatology Center (Hansen and other skin diseases)		1	38	1	38		
Hospital Unit - Rehabilitation Center		1	40	1	40		
Industrial		1	282	1	282		
Non Governmental		7	1038				
Private - Profit		4	797			4	797
Tuberculosis		1	158			1	158
Ophtalmology		1	48			1	48
Psychiatric		2	591			2	591
Private - Non Profit		3	241			3	241
Hospital de la Concepción (Psychiatric Unit)		---	30			--	30
Hospital de Niños - Ortho. & T. B. Bones		1	45			1	45
Cancer		2	166			2	166
	Grand Total	138	11946	89	7966	49	3980

EXHIBICIONES CIENTIFICAS

Los siguientes trabajos se exhibirán durante los días de la Asamblea:

USE OF CARDIOVERSION IN THE SMALLER MEDICAL CENTER
Robert A. Turkel, MD – William A. Lemmert, MD

BIOLOGICAL EFFECTS OF MICROWAVE (RADAR) RADIATION
William B. Deichmann, MD

BACTERIAL AND CLINICAL FEATURES OF ACUTE INFECTIONS OF THE UPPER RESPIRATORY IN ADULTS
George A. Pankay, MD

CLINICAL APPLICATION IN PHYSICAL MEDICINE AND REHABILITATION
Carlos Armstrong-Ressy, MD – Rafael Berríos Martínez, MD

CHYLURIA
Bernardino González Flores, MD

ACCURATE APGAR SCARING
David Hammer, Raymond Porter, Arthur Santiago from Jewish Hospital and Medical Center of Brooklyn, and M. A. Colón-Morales, MD, from Teachers Hospital of Puerto Rico.

LA ENSEÑANZA DE RESUCITACION CARDIOPULMONAR
M. A. Colón Morales, MD, Depto. Anestesiología, Hospital del Maestro, Hato Rey, Puerto Rico

RADIOISOTOPE SCANNING OF THE LIVER
Julio V. Rivera, MD – P. H. García Font, MD – A. L. Rodríguez Rosado, MD – R. Bernabe Prida, BS, Ph – Laura Lespier, BS

EXHIBICIONES TECNICAS

Durante los días de la Asamblea, las siguientes firmas exhibirán sus productos:

ABBOTT LABORATORIES PUERTO RICO, INC.
AYERST LABORATORIES (P. R.) INC.

BORDEN-PUERTO RICO DAIRY
BRISTOL LABORATORIES
BORSCHOW SERVICE ASSOCIATES
BURROUGHS WELLCOME & COMPANY
CARNATION (MIRANDA & EGUIA)
CIBA PHARMACEUTICAL COMPANY
COCA-COLA BOTTLING COMPANY
COOPER LABORATORIES, INC.
CYANAMIDE BORINQUEN CORPORATION
DOW CHEMICAL LATIN AMERICA
EATON LABORATORIES
FONDO FOMENTO INDUSTRIA LECHERA (INDULAC)
GEIGY PHARMACEUTICAL PRODUCTS
HOECHST PHARMACEUTICAL, INC.
HONEYWELL INCORPORATED
KREMERS URBAN/PUERTO RICO, INC.
LAKESIDE LABORATORIES
ELI LILLY, S. A.
MEAD-JOHNSON PUERTO RICO, INC.
MERCK-SHARPE & DOHME
MINNESOTA MINING (3M)
NESSAN LABORATORIES, INC.
ORGANON, INC.
ORTHO PHARMACEUTICAL CORP.
PARKE DAVIS & CO.
PFIZER CORPORATION
PHARMACEUTICAL CORPORATION
PICKER DEL CARIBE, INC.
PLAZA PROVISION COMPANY
PRO-MEDICA HOSPITAL SUPPLIES, INC.
PRO-SALUD (ADMAKERS)
PURDUE FREDERICK COMPANY
REED & CARNRICK
RICHARDS CARIBBEAN ASSOCIATES
RICHARDSON-MERRELL NATIONAL WALKER
A. H. ROBINS INTERAMERICAN
ROCHE LABORATORIES
SAN JUAN ELECTRONICS BIOPHYSICAL, INC.
SANDOZ PHARMACEUTICALS
SMITH KLINE & FRENCH
SMITH, MILLER & PATCH
E. R. SQUIBB & SONS
STATE MUTUAL LIFE OF AMERICA
STERLING PRODUCTS INTERNATIONAL, INC.
SYNTEX LABORATORIES
TEXAS PHARMACAL
U. S. V. PHARMACEUTICAL CORP.
UPJOHN INTERAMERICAN CORPORATION
UNITED STATES SHOE CORPORATION
WARNER-CHILCOTT LABORATORIES
WHITE LABORATORIES, INC.
WHYETH LABORATORIES
WILLIAM A. WEBSTER COMPANY

†

IN MEMORIAN

Nuestro humilde pero sincero homenaje de recordación para los compañeros fallecidos este año, y la más ferviente oración por sus almas.

JUAN ARRUZA
JOSE ALUM PEREZ
MANUEL BERRIOS
TITO MATTEI SEMIDEY
MANUEL JANER
ANTONIO NAVAS
LEOPOLDO FIGUEROA

AL FINAL DE UN AÑO

Se ha caracterizado este año por un sinnúmero de cambios a presentarse en la prestación de servicios de salud. Nuestra Asociación siempre en la vanguardia en todos estos cambios debe estar preparada para afrontar lo que se avecina y para dejar oir su voz de liderato en todos los rincones de Puerto Rico orientando y llevando conocimientos a nuestro pueblo sobre lo que esto es y significa.

Nuestro trabajo como Asociación cada día se hace más fuerte y cada día necesitamos que todos y cada uno de nuestros asociados sean portavoces de nuestros principios y nuestras luchas.

Las sociedades de distrito deben continuar su labor de líderes en su comunidad en lo que a problemas de salud se refiere ofreciendo soluciones lógicas y cooperando en todo momento.

Podrá en ocasiones haber diferencias en cuanto a cómo resolver un problema pero siempre estaremos de acuerdo en que hay que resolverlo.

Hemos sido entrenados para tener una mente abierta a las nuevas ideas y conceptos en los asuntos científicos y técnicos. Debemos mantener esa misma actitud hacia los cambios sociales que puedan ocurrir, defendiendo siempre nuestro principio de libre selección.

En ocasiones tendremos que reexaminar algunos de nuestros conceptos para adaptarlos a los posibles cambios pero siempre defendiendo la razón de nuestro ser — el paciente.

Nuestra Asociación es nuestra alma y juntos todos, unidos en la Gran Familia Médica, seguiremos luchando por el bienestar de nuestro pueblo, aceptando el reto que se nos presenta en la nueva legislación de salud y en ningún momento eludiendo esa responsabilidad que como ciudadanos y médicos tenemos que aceptar.

Martín A. Iguina-Mora, MD

NOTICIAS

Medico Aids Through Self-Help Programs

MEDICO (Medical International Cooperation Organization) was founded in 1958 by the late Dr. Tom Dooley and Dr. Peter D. Comanduras to share the benefits of modern medicine with the emerging nations of Southeast Asia. Their vision became a reality, and the work of MEDICO spread around the world. In 1962, MEDICO merged with CARE, the overseas aid agency, which handles administrative and logistical aspects of the program. Headquarters are at 660 First Avenue, New York, N. Y.

The people helped by MEDICO over the past decade number in the millions. But figures do not tell the story of the battle being waged against suffering and disease in developing countries from Honduras to Vietnam, from Afghanistan to Malaysia.

Real success is measured not in terms of lives saved but in the expansion of improved medical care throughout the world. MEDICO's chief contribution is assistance which enables host governments to do more for their own people.

In addition to treating patients, dedicated staff and volunteers each year advance the training of hundreds of indigenous personnel, from aides to specialists. MEDICO teams work toward eventual phase-out, to the day when counterparts they have helped train can carry on programs by themselves.

As MEDICO moves into its second decade, there are 50 physicians, nurses, physical therapists and technicians serving on seven long-term medical teams stationed in six countries of Asia, Africa and Latin America, including Malaysia, Afghanistan, Tunisia, Algeria, Dominican Republic and Honduras.

Visiting specialists volunteer their services, paying their own travel and living expenses on month-long tours to practice and teach their specialties at MEDICO team posts in South Vietnam, Indonesia and other countries. The number increases each year, the total for 1968 being 127, or the equivalent of one specialist volunteering every three days.

Over the years, MEDICO has operated in nearly 50 hospitals, clinics and other medical installations in a score of countries. Of the original projects negotiated by Dr. Dooley before his death early in 1961, only one remains among the present installations – the program in Kabul, Afghanistan. In line with MEDICO's goals, the others have since been turned over to local staff which MEDICO helped train.

Among the achievements of the overseas medical aid organization to date:

–Formation of the first eye bank in Jordan.

–Transfer of an orthopedic unit in Jordan to local surgeons trained by U. S. physicians over a five-year period.

–Opening of the first neurosurgical training program on the mainland of Malaysia. The unit has since been turned over to the host government.

–Inauguration of a training program in plastic surgery for physicians in South Vietnam for restorative surgery on war victims.

–Establishment of a training course for nursing assistants at the hospital in Santa Rosa, Honduras.

–Opening of a MEDICO dental program in Honduras.

MEDICO's special talent, according to its director, Dr. Colgate Phillips, "lies in the maintenance of a very personal doctor-patient relationship. And this is accomplished in spite of the fact that hundreds of thousands of persons are aided each year."

Not long ago, a flare-up of cholera in Malaysia brought a MEDICO doctor to the scene. In three weeks, he gave nearly 14,000 inoculations to more than half of the district population. In his report, the team captain called this prompt aid "an outstanding example of international cooperation: here was a Canadian doctor using American needles and syringes, sterilized over a stove borrowed from a Chinese school, to inoculate Malaysians with Italian vaccine."

The work of MEDICO is truly international, but the credit must go to the self-sacrificing individuals who serve. As one observer noted: "They are men and women who are dedicated to an ideal – without being 'starry-eyed idealists'."

La Escuela de Medicina de la Universidad de Puerto Rico ha recibido una adjudicación de $495,000 mediante un contrato para desarrollar un curso *de perfeccionamiento* para médicos puertorriqueños graduados de escuelas extranjeras. El contrato se ha efectuado con el servicio de salud y de administración de salud mental del Centro Nacional de Servicios de Salud, División de Desarrollo e Investigaciones del Departamento Federal de Salud, Educación y Bienestar.

Médicos puertorriqueños graduados de escuelas extranjeras serán consultados sobre sus *opiniones, aptitudes y disponibilidad* para el curso. Aquellos interesados serán considerados para tomar un curso adaptado a sus necesidades. Durante el primer año del contrato la Escuela de Medicina desarrollará criterios para la selección de los candidatos, preparará el currículum y establecerá una División con las facilidades físicas apropiadas para llevar a cabo el curso. El segundo año se dedicará a dar el primer curso; el cual comenzará probablemente en junio de 1970. Un aspecto importante del proyecto será la evaluación continuada de lo que se está haciendo y, de acuerdo con los hallazgos, se tomará una decisión en cuanto

a un segundo curso en el 1971. Si se obtienen resultados satisfactorios, la Escuela de Medicina solicitará fondos para la continuación del curso como una actividad permanente.

Se establece la necesidad continuada de un curso por el hecho de que de 50 a 75 médicos puertorriqueños se gradúan todos los años de escuelas de medicina extranjeras y regresan a practicar en Puerto Rico. Un número de éstos toma los exámenes de reválida, los pasan y pueden practicar la medicina libremente en Puerto Rico o en Estados Unidos sin restricciones. Sin embargo, muchos necesitan más entrenamiento para ayudarlos a practicar la medicina adecuadamente y a pasar los exámenes estatales de reválida. Se planea matricular en el curso anualmente 50 médicos, de manera que si el mismo tiene éxito, esto le permitiría a la Escuela de Medicina de la Universidad de Puerto Rico preparar, a través de un esfuerzo anual, el número equivalente de médicos que se graduarían de una Escuela de Medicina adicional. En el desarrollo de este curso han colaborado activamente y ofrecido su plena cooperación el Departamento de Salud de Puerto Rico, la Asociación Médica de Puerto Rico, la Junta Estatal de Examinadores y las instituciones participantes del Centro Médico de Puerto Rico.

La 67a. Convención Anual de la AMPR se celebrará este año del 4 al 8 de noviembre en el Salón Isla Verde del Hotel San Juan. Personalidades médicas del país y del exterior han sido invitadas a participar en el programa científico.

La Cámara de Delegados celebrará su primera sesión el día 1ro. de noviembre y la segunda el día 4, ambas en el edificio de la AMPR.

Este año se celebrará la tercer "Conferencia Anual - Dr. Ramón M. Suárez". El conferenciante invitado lo es el Dr. Ignacio Chávez, Fundador y Director Honorario del Instituto de Cardiología de México y Ex-Rector de la Universidad Autónoma de dicho país. El tema de la conferencia será "Reflexiones de un Clínico sobre la Responsabilidad Profesional y la Moral Médica de nuestros Tiempos".

El sábado 8 de noviembre se llevará a efecto la Toma de Posesión de la nueva Directiva.

List of States of the Union which the Board of Medical Examiners of Puerto Rico has established Reciprocity Relations.

1. Georgia
2. Indiana
3. Iowa
4. Kentucky
5. Maryland
6. Massachussets
7. Michigan
8. Missouri
9. Nebraska
10. New York
11. North Dakota
12. Ohio
13. Panamá Canal Zone
14. Pennsylvania (Personal Interview Required)
15. Rhode Island
16. South Carolina
17. Tennessee
18. Virginia
19. Washington, D. C.
20. Wisconsin

Our Board maintains interstate endorsement with the states listed above in the United States provided that the credentials of the applicant meet with the approval of this Board.

67a. Asamblea Anual - AMPR - Programa Diario

Martes, Nov. 4:

8:00 p. m. Sesión Inaugural
10:00 p. m. Recepción Presidencial

Miércoles, Nov. 5:

9:00 a.m. a
2:00 p. m. Sesión Científica - Salón Isla Verde
2:00 p. m. Almuerzo
3:00 p.m. a
6:00 p.m. Seminar Public Affairs - Salón Isla Verde.
NOCHE LIBRE

Jueves, Nov. 6:

9:00 a.m. a
2:00 p.m. Sesión Científica - Salón Isla Verde
2:00 p.m. Almuerzo
TARDE LIBRE
NOCHE LIBRE

Viernes, Nov. 7:

Sesión Científica Concurrente

9:00 a.m. a
2:00 p.m. Salón Isla Verde
9:00 a.m. a
12:00 m. Anfiteatro Hospital Capital
2:00 p.m. Almuerzo
TARDE LIBRE
NOCHE LIBRE

Sábado, Nov. 8:

Sesión Científica Concurrente

9:00 a.m. a
12:00 m. Salón Isla Verde y Anfiteatro Hosp. Capital
1:00 p.m. Almuerzo y Toma de Posesión Nueva Directiva
7:30 p.m. Coctel
8:30 p.m. Banquete-Baile - Salón Isla Verde

Reuniones de la Cámara de Delegados

Sábado - Noviembre 1 - 9:30 a.m. - Domicilio de la Asociación.
Martes - Noviembre 4 - 2:00 p.m. - Domicilio de la Asociación.

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el número de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), e iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas médicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

Se alquila local segundo piso, para médicos - Más de 1,000 pies cuadrados - piso terrazo - tres cuartos - dos baños; luz, agua y parking incluídos. A varios minutos del Hospital del Maestro. Centro Médico y Auxilio Mutuo. Para más información, llamar al Dr. Cuevas, teléfonos 767-1004 o 764-2226.

Se alquila local para dispensario médico - Tiene tres oficinas - Teléfono - Ave. Comercial Lomas Verdes. Para más información llamar al teléfono 767-5095.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pilar Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras, Están semiequipadas. Sitio céntrico próximo a las calles principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas, Apartado 20267, Río Piedras, P. R., Teléfono 766-7398.

WANTED

Internist, Board certified or eligible to work in a prosperous, growing area in South Texas. Will share modern medical building with Lab. and X-Ray facilities. Please contact Víctor Malagón, MD, FACP, FACC, 802 So. Main St., McAllen, Texas.

SE VENDE

Se vende Fluroscopio Westinghouse. Precio razonable. Inf: J. Ramírez-Ledesma, MD, Apartado 3013, Mayaguez, Puerto Rico, 00708.

Vibramycin® (doxycycline) hits hard where it counts. In the tissue.

Against a wide variety of bacterial pathogens—common, frequent or rare—Vibramycin (doxycycline) combats susceptible strains where it counts. In the tissue.*

Vibramycin hits hard: No other oral tetracycline passes so readily from the G.I. tract to the bloodstream and then concentrates in the tissue, the site of most infections. Vibramycin is absorbed so completely that 100 mg. daily, after the first day,† does the work of 600 mg. DMCT or 1,000 mg. tetracycline.

Vibramycin hits fast: 50% of Vibramycin is absorbed in 28 minutes, 80% in one hour.[1] After 60 minutes, 100 mg. of Vibramycin taken orally produced blood levels as high as, or higher than, 100 mg. of tetracycline given intramuscularly in 15 human subjects.[2]

Tissue specimens removed from surgical patients revealed that tissue concentrations of Vibramycin were usually higher than Vibramycin (doxycycline) levels in the serum.

Average doxycycline concentrations in tissue and serum[3]

	TISSUE μg./Gm.	SERUM μg./ml.
LUNG (12 patients)	5.4±3.8	2.7±.85
GALLBLADDER (4 patients)	6.0±2.7	3.2±.84
KIDNEY (8 patients)	8.6±6.6	4.9±1.7

(Adapted from Fabre, J. et al.[3])

Concentrations of doxycycline were determined in tissue specimens removed from surgical patients. Most patients were operated on the second day of doxycycline therapy and about 5 hours after the last dose of antibiotic. Dosage was 200 mg. initially followed by 100 mg. every 24 hours thereafter.

In addition, a study involving the heart, lungs, muscle (femoral and intercostal), liver and kidney of 4 dogs shows that average tissue levels with Vibramycin were usually higher than Vibramycin levels in serum.[4]

Vibramycin has a wide spectrum of antibacterial activity. A recent national audit of bacterial cultures reveals that the pathogens causing infection are indeed many and varied.[5] Covering more than 39,000 physician-requested cultures in 115 hospitals, the study reports that 54 different bacterial pathogens were identified from 23,530 cultures, as well as 3,559 instances of mixed cultures—a confirmation that you may see a broad spectrum of *pathogens* in your daily office and hospital practice. Can you think of a better reason to select an antibiotic like Vibramycin, which offers an unsurpassed spectrum of activity against susceptible organisms?*

Its range of coverage is unequaled—and currently unattainable—by any natural or synthetic penicillin. Vibramycin also gives you the advantage of inhibiting many penicillinase-producing strains of "staph," E. coli, pseudomonas and Klebsiella-Aerobacter—organisms which inactivate ampicillin and penicillin G! The *in vitro* spectrum of Vibramycin is so wide it even includes M. pneumoniae (Eaton agent, PPLO), responsible for as high as 24% of adult pneumonias requiring hospitalization.[6]

*Because not all strains of pathogens are susceptible, it is recommended that routine culture and susceptibility studies be performed.
†In more severe infections, 100 mg. b.i.d. is recommended.

Vibramycin® Hyclate (doxycycline hyclate) 100 mg.§ capsules

§ equivalent to 100 mg. doxycycline

Pfizer LABORATORIES DIVISION
New York, N.Y. 10017

For more detailed information regarding dosage, contraindications, warnings, precautions and side effects, please refer to Brief Summary on the following page.

Vibramycin (doxycycline) hits hard where it counts. In the tissue.

More complete absorption permits low dosage to go further—
with unusually low incidence of G.I. side effects.

Vibramycin® Hyclate (doxycycline hyclate) 100 mg.§ capsules

§ equivalent to 100 mg. doxycycline

Contraindicated: In individuals who have shown hypersensitivity to doxycycline.

Warnings: The usual dosage and frequency of administration of Vibramycin (doxycycline) differs from that of other tetracyclines. Exceeding the recommended dosage may result in an increased incidence of side effects.

If renal impairment exists, even usual doses may lead to excessive accumulation of the drug and possible hepatic toxicity. For such patients, lower than usual doses are indicated and, if treatment is prolonged, Vibramycin serum level determinations may be advisable.

Vibramycin, like other tetracyclines, may form a stable calcium complex in any bone-forming tissue, although *in vitro* Vibramycin binds calcium less strongly than other tetracyclines. Though not observed in clinical studies to date and until evidence to the contrary develops, it should be anticipated that the use of Vibramycin during tooth development (last trimester of pregnancy, neonatal period, and early childhood) may cause discoloration of the teeth (yellow-gray-brownish). This effect may occur mostly during long-term use, but also may occur with short-treatment courses.

Increased intracranial pressure with bulging fontanelles has been observed in infants receiving tetracyclines. This effect has disappeared rapidly on cessation of therapy with no sequelae.

In certain hypersensitive individuals treated with Vibramycin, exposure to direct sunlight may precipitate a photodynamic reaction. In individuals with a history of photoallergic reactions to tetracyclines, exposure to direct sunlight should be avoided and treatment should be discontinued at first evidence of skin discomfort.

Precautions: As with any antibiotic, overgrowth of nonsusceptible organisms may occasionally occur. Constant observation of the patient is essential. If such superinfections are encountered, Vibramycin should be discontinued and replaced by appropriate therapy.

When treating gonorrhea in which lesions of primary or secondary syphilis are suspected, proper diagnostic procedures, including darkfield examinations, should be utilized. In all cases in which concomitant syphilis is suspected, monthly serological tests should be made for at least four months.

Therapy should be continued beyond the time that symptoms and fever have subsided.

When used in streptococcal infections, therapy should be continued for 10 days to prevent the development of rheumatic fever or glomerulonephritis.

If gastric irritation occurs, it is recommended that Vibramycin be given with food or milk. Studies indicate that the absorption of Vibramycin is not markedly influenced by simultaneous ingestion of food or milk.

Simultaneous administration of aluminum hydroxide gel given with Vibramycin has been shown to decrease absorption.

Adverse Reactions: Nausea, vomiting, diarrhea, vaginitis, as well as reactions of an allergic nature such as dermatitis, urticaria, and anaphylaxis may occur but are rare. Glossitis, stomatitis, proctitis, onycholysis and discoloration of the nails may rarely occur during tetracycline therapy as with other antibiotics. If severe adverse reactions, individual idiosyncrasy, or allergy occur, discontinue medication.

As with other tetracyclines, elevation of SGOT or SGPT values, or elevated BUN have been reported, the significance of which is not known at this time. Anemia, neutropenia, and eosinophilia have been reported, as with other tetracyclines.

Animal Pharmacology: As with other tetracyclines, at doses greater than those recommended for human usage, Vibramycin produces discoloration of animal thyroid glands. Careful monitoring of animals and humans has disclosed no abnormalities of thyroid function studies. Also, as with other tetracyclines, at relatively high oral doses, evidence of hepatotoxicity has been noted in dogs and signs of gastrointestinal intolerance have been seen in both dogs and monkeys.

Supply: Vibramycin Hyclate (doxycycline hyclate) is available as capsules containing doxycycline hyclate equivalent to 50 mg. of doxycycline, bottles of 50, and unit-dose paks of 100 (10 x 10's); capsules containing doxycycline hyclate equivalent to 100 mg. of doxycycline, bottles of 50, and unit-dose paks of 100 (10 x 10's).

Vibramycin Monohydrate (doxycycline monohydrate) is available as a dry powder for oral suspension containing when reconstituted doxycycline monohydrate equivalent to 25 mg. of doxycycline per 5 cc. (each teaspoonful), with a pleasant-tasting raspberry flavor, 2 oz. bottles.

More detailed professional information available on request.

References

1. Schach von Wittenau, M.: Presented at Vibramycin Symposium, Berne, Switzerland, December 7, 1967. **2.** Research data on file, Pfizer Medical Department, Pfizer Laboratories Division. **3.** Fabre, J. et al.: Presented at Vibramycin Symposium, Berne, Switzerland, December 7, 1967. **4.** Schach von Wittenau, M. and Delahunt, C. S.: J. Pharmacol. Exp. Ther. 152:164, Apr., 1966. **5.** Independent Survey, R. A. Gosselin and Company, Inc., The Audit of Pathology Cultures, vol. 1, 1966. **6.** Hilleman, M. R. et al.: J.A.M.A. 180:445, May 12, 1962.

Pfizer LABORATORIES DIVISION
New York, N.Y. 10017

No matter how good your present anesthesia machine is, the Heidbrink® DM 5000 is better.



Better because

no tedious calculations are required.
Built-in, electrically heated vaporizers precisely control agent vapor pressure.
Long scale (11″) flowmeters are calibrated directly in flow rate of gases and vapors.
Static-dissipating shield protects flowmeters.
Flowmeters are compensated for ambient barometric pressure and are insensitive to patient circuit pressure variations.
Anesthesia agents may be changed in "mid-stream."
Pressure gauges and oxygen flush valve are conveniently front-mounted.
Large flat surfaces are easily cleaned.

general gases & supplies corp.

Jaspe No. 21 Centro Comercial Villa Blanca
Caguas, P. R. 743-6595

Barbosa No. 11
Bayamón, P. R. 785-6090

Intersección Ave. Central y Carr. Guaynabo
Guaynabo, P. R. 783-4515

Condominio Los Flamboyanes
Ave. 65th Infantería cruce Trujillo Alto
Río Piedras, P. R. 764-1940

Calle Muñoz Rivera esq. Ave. Expreso
Ponce. P. R. 843-0425

Manuel Camuñas No. 10
Urb. Industrial Tres Monjitas
Hato Rey, P. R. 765-7445



There's more to being a Triple S participating physician than having 135,000 prospective patients

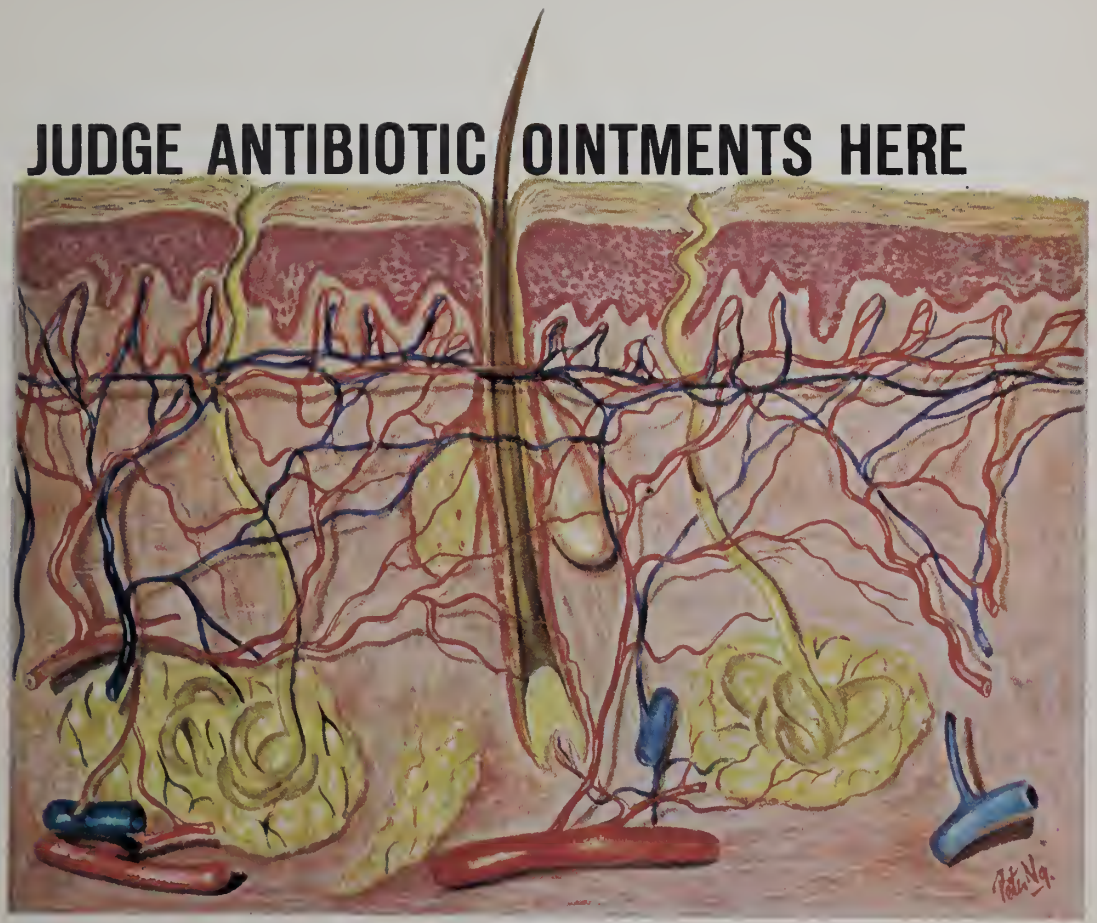


An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

SSS

Member of the National Association of Blue Shield Plans

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

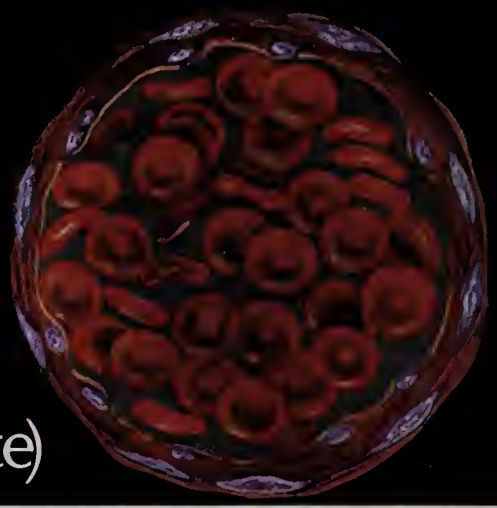
'NEOSPORIN'®

brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

Roniacol® Timespan®
(nicotinyl alcohol tartrate)



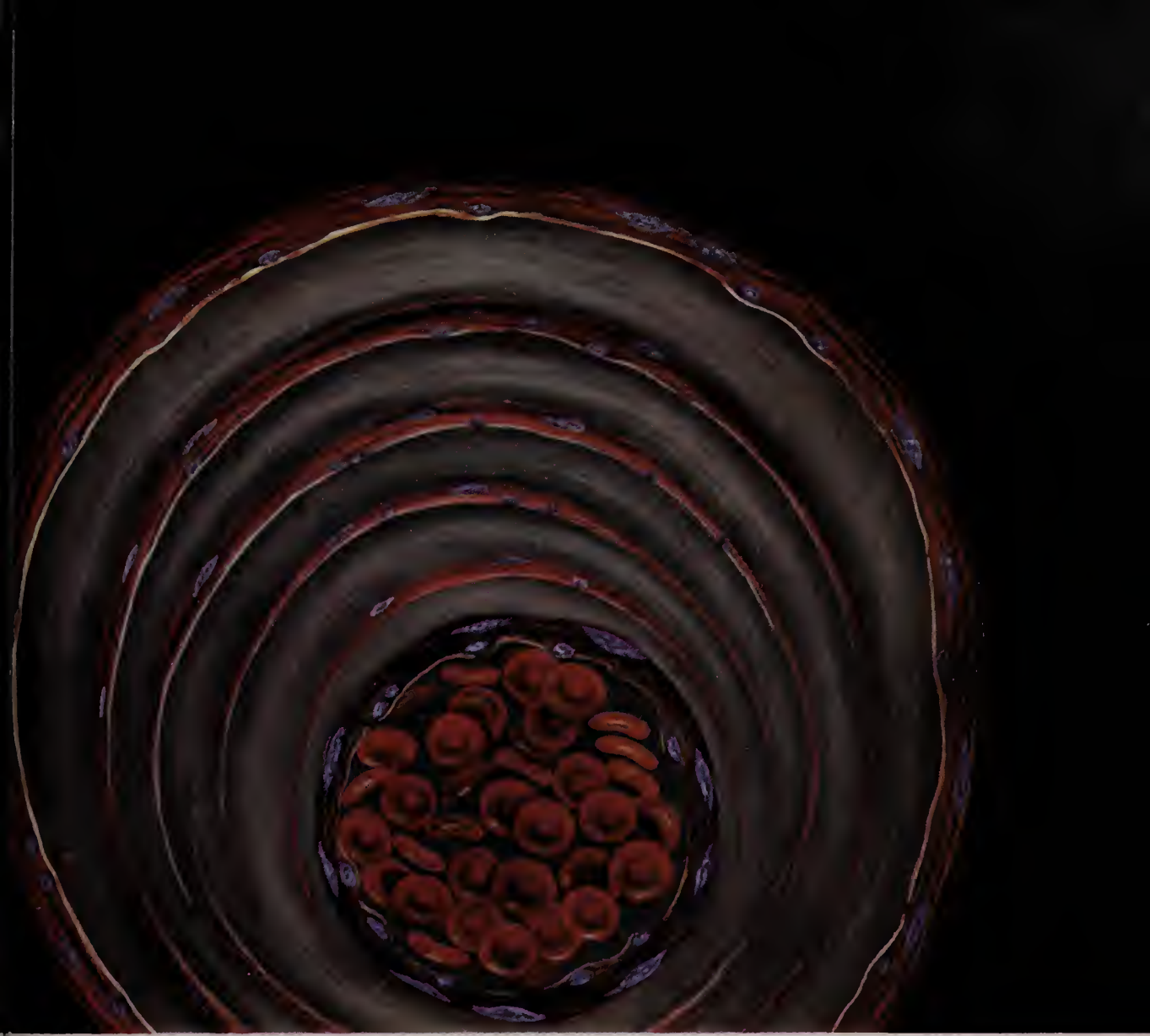
Because peripheral vasodilatio is needed now... and must often be continued

Roniacol Timespan (nicotinyl alcohol tartrate) can make a significant contribution to effective treatment of peripheral vascular disorders. It is directed specifically toward improvement of peripheral blood flow, relief of ischemic symptoms, and the long-term management of these conditions.

Specific pharmacologic action—Roniacol (nicotinyl alcohol) acts selectively by relaxing smooth muscle of peripheral blood vessels. Onset of action is smooth and gradual, rarely causing severe flushing.

Relative freedom from side effects—Side effects that may occur occasionally with Roniacol seldom require discontinuation of therapy.

Prolonged, continuous drug release—Prolonged peripheral vasodilation is provided l sustained-release Roniacol Timespan (nicot alcohol tartrate) Tablets. Part of the drug be comes available immediately, the remainde continuously over a period of up to 12 hour and dilation of constricted peripheral vesse usually maintained. Thus, with a single dose medication, patients can enjoy the benefits increased peripheral blood flow in ischemi extremities for up to 12 hours.



mooth peripheral vasodilation from initial losage...extended with imple, well-tolerated, b.i.d. dosage

e prolonged action of Roniacol Timespan icotinyl alcohol tartrate) together with its her benefits offer a therapeutically practical easure in the long-term management of ripheral vascular disease–advantages pecially important for older patients.

fore prescribing, please consult complete oduct information, a summary of which llows:

dications: Conditions associated with ficient circulation; e.g., peripheral vascular sease, vascular spasm, varicose ulcers, cubital ulcers, chilblains, Meniere's syn-ome and vertigo.

Caution: Roche Laboratories endorses caution in the administration of any therapeutic agent to pregnant patients.

Side Effects: Transient flushing, gastric disturbances, minor skin rashes and allergies may occur in some patients, seldom requiring discontinuation of the drug.

Dosage: 1 or 2 Timespan Tablets—150 mg nicotinyl alcohol in the form of the tartrate salt—bottles of 50 and 500.

ROCHE

Roche
LABORATORIES
Division of Hoffmann - La Roche Inc.
Nutley, New Jersey 07110

Art is a conception of peripheral vasodilation.



Mon in space, now foit accompli, re-emphosizes the importance of Uro-Phosphote theropy. Research into the effect of space trovel on the ostronout reveals that weightlessness causes loss of bone calcium. As the bones are required to bear less ond less of the weight of the body they lose colcium, increosing the calcium content of the urine. When physicol octivity is reduced, the acidity of the urine should be adjusted to keep increosed colcium in solution . . . . o prophylaxis to prevent kidney or bladder colculi.

Uro-Phosphate®

NOW A SUGAR-COATED TABLET

Eoch tablet contoins: METHENAMINE, *300 mg.;* SODIUM ACID PHOSPHATE, *500 mg.*

Uro-Phosphate gives comfort and protection when inactivity causes discomfort in the urinary function. It keeps calcium in solution, preventing calculi; it maintains clear, acid, sterile urine; it encourages complete voiding and lessens frequency when residual urine is present.

Uro-Phosphate contains sodium acid phosphate, a natural urinary acidifier. This component is fortified with methenamine which is inert until it reaches the acid urinary bladder. In this environment it releases a mild antiseptic keeping the urine sterile.

Uro-Phosphate is safe for continuous use. There are no contra-indications other than acidosis. It can be given in sufficient amount to keep the urine clear, acid and sterile. A heavy sugar coating protects its potency.

Dosage:

For protection of the inactive potient 1 or 2 toblets every 4 to 6 hours is usuolly sufficient to keep the urine cleor, acid ond sterile.

2 toblets on retiring will keep residuol urine acid ond sterile, contributing to comfort ond rest.

A clinical supply will be sent to physicions ond hospitols on request.

WILLIAM P. POYTHRESS & COMPANY, INC., RICHMOND, VIRGINIA 23217

Manufacturers of Ethical Pharmaceuticals



65th. Infantry Road Km. 13.4, Carolina, P. R. — Tel. 769-3131

WARNER-LAMBERT, Ltd. - Distributor of:

WC WARNER-CHILCOTT

DR DIAGNOSTIC REAGENTS

TPC TEXAS PHARMACAL COMPANY
AN AFFILIATE OF
WARNER-CHILCOTT LABORATORIES

The Apprehensive Hypertensive



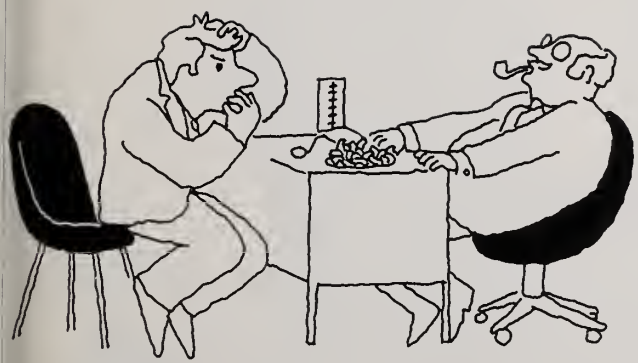


Regroton® to lower blood pressur

chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

Regroton®: chlorthalidone 50 mg., reserpine U.S.P. 0.25 mg.
Indications: Hypertension. *Contraindications:* History of mental depression, hypersensitivity, and most cases of severe renal or hepatic diseases. *Warning:* With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has frequently been required and deaths have occurred. Discontinue coated potassium-containing formulations immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur. Discontinue one week before electroshock therapy, and if depression or peptic ulcer occurs. *Use in pregnancy:* Because chlorthalidone may cross the placental barrier and appear in cord blood and thiazides may appear in breast milk, this drug should be used with care in pregnant patients and nursing mothers. When used in women of childbearing age, the potential benefits of the drug should be weighed against the possible hazards to the fetus. Use of chlorthalidone may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. Incr s respiratory secretions, nasal congestion, cyanosis and anorexia m occur in infants born to reserpine-treated mothers. *Precautions:* A th pertensive therapy with this drug should always be initiated caut s in postsympathectomy patients and in patients receiving gang r blocking agents, other potent antihypertensive drugs, or curare. R u dosage of concomitant antihypertensive agents by at least one-ha avoid hypotension during surgery, discontinue therapy with this g two weeks prior to elective surgical procedures. In emergency su e use, if needed, anticholinergic or adrenergic drugs or other supp ti measures as indicated. Because of the possibility of progress h renal damage, periodic kidney function tests are indicated. Disco nu if the BUN rises or liver dysfunction is aggravated. Hepatic com m be precipitated. Electrolyte imbalance, sodium and/or potassiu d pletion may occur. If potassium depletion should occur during th ap the drug should be discontinued and potassium supplements ve provided the patient does not have marked oliguria. Take particula ca in cirrhosis or severe ischemic heart disease and in patients rec vi

WE'VE GOT TO GET PLENTY OF REST AND TRY TO AVOID SITUATIONS THAT MAKE US ANXIOUS OR TENSE. AND WE'LL TAKE MEDICINE TO LOWER OUR BLOOD PRESSURE AND CALM US DOWN.



WE'VE GOT PROBLEMS.



and allay anxiety in hypertension

corticosteroids, ACTH, or digitalis. Severe salt restriction is not recommended. Use cautiously in patients with ulcerative colitis or gallstones (biliary colic may be precipitated). Bronchial asthma may occur in susceptible patients. *Adverse Reactions:* The drug is generally well tolerated. The most frequent side effects are nausea, gastric irritation, vomiting, diarrhea, constipation, muscle cramps, headache, dizziness and acute gout. Other potential side effects include angina pectoris, anxiety, depression, bradycardia and ectopic cardiac rhythms (especially when used with digitalis), drowsiness, dull sensorium, hyperglycemia and glycosuria, hyperuricemia, lassitude, restlessness, transient myopia, impotence or dysuria, orthostatic hypotension which may be potentiated when chlorthalidone is combined with alcohol, barbiturates or narcotics, leukopenia, aplastic anemia, skin rashes, thrombocytopenia, agranulocytosis, nasal stuffiness, increased gastric secretions, nightmare, purpura, urticaria, ecchymosis, weakness, uveitis, optic atrophy and glaucoma, and pruritus. Eruptions and/or flushing of the skin, a reversible paralysis agitans-like syndrome, blurred vision, conjunctival injection, increased susceptibility to colds, dyspnea, weight gain, decreased libido, dryness of the mouth, deafness, anorexia, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Jaundice, xanthopsia, paresthesia, photosensitization and necrotizing angiitis are possible. *Average Dosage:* One tablet daily with breakfast. *Availability:* Pink, single-scored tablets in bottles of 100 and 1000. (B)46-600-C

For details, please see complete prescribing information.

Regroton®
chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

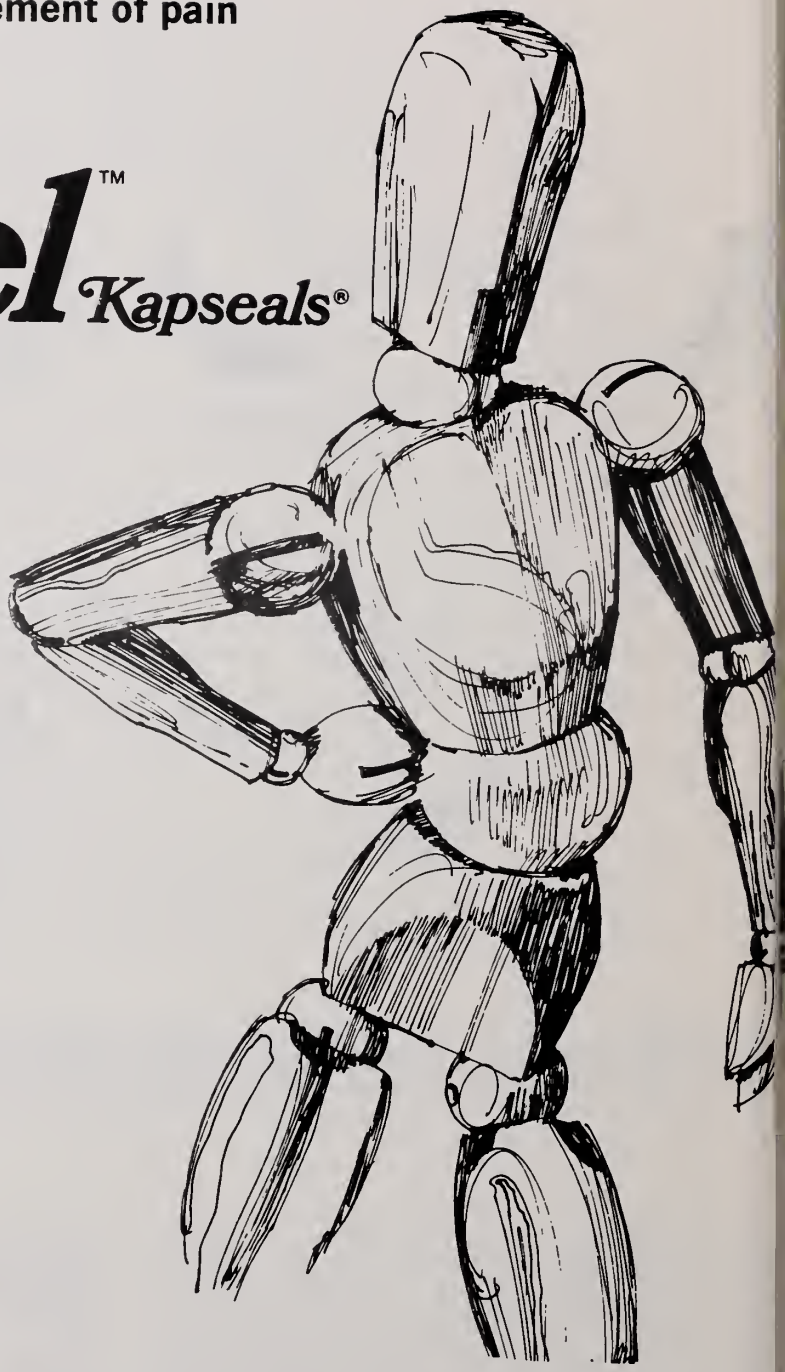
Geigy Pharmaceuticals
Division of Geigy Chemical Corporation
Ardsley, New York 10502

RE-6742

NEW . . . for effective management of pain

Ponstel™ Kapseals®
(mefenamic acid)

a nonnarcotic oral analgesic



PARKE-DAVIS



symptoms of mixed anxiety-depression are rarely clear-cut...
but they are often a clear indication for

Mellaril®
(thioridazine)
25 mg. t.i.d.

effective in mixed anxiety-depression and in moderate to severe anxiety

Before prescribing or administering, see Sandoz literature for full product information, including adverse reactions reported with phenothiazines. The following is a brief precautionary statement.

Contraindications: Severe central nervous system depression, comatose states from any cause, hypertensive or hypotensive heart disease of extreme degree.

Warnings: Administer cautiously to patients who have previously exhibited a hypersensitivity reaction (e.g., blood dyscrasias, jaundice) to phenothiazines. Phenothiazines are capable of potentiating central nervous system depressants (e.g., anesthetics, opiates, alcohol, etc.) as well as atropine and phosphorus insecticides. During pregnancy, administer only when necessary.

Precautions: There have been infrequent reports of leukopenia and/or agranulocytosis and convulsive seizures. In epileptic patients, anticonvulsant medication should also be maintained. Pigmentary retinopathy may be avoided by remaining within the recommended limits of dosage. Administer cautiously to patients participating in activities requiring complete mental alertness (e.g., driving). Orthostatic hypotension is more common in females than in males. Do not use epinephrine in treating drug-induced hypotension. Daily doses in excess of 300 mg. should be used only in severe neuropsychiatric conditions.

Adverse Reactions: *Central Nervous System*—Drowsiness, especially with large doses, early in treatment; infrequently, pseudoparkinsonism and other extrapyramidal symptoms; nocturnal confusion, hyperactivity, lethargy, psychotic reactions, restlessness, and headache. *Autonomic Nervous System*—Dryness of mouth, blurred vision, constipation, nausea, vomiting, diarrhea, nasal stuffiness, and pallor. *Endocrine System*—Galactorrhea, breast engorgement, amenorrhea, inhibition of ejaculation, and peripheral edema. *Skin*—Dermatitis and skin eruptions of the urticarial type, photosensitivity. *Cardiovascular System*—Changes in the terminal portion of the electrocardiogram have been observed in some patients receiving the phenothiazine tranquilizers, including Mellaril (thioridazine). While there is no evidence at present that these changes are in any way precursors of any significant disturbance of cardiac rhythm, several sudden and unexpected deaths apparently due to cardiac arrest have occurred in patients previously showing electrocardiographic changes. The use of periodic electrocardiograms has been proposed but would appear to be of questionable value as a predictive device. *Other*—A single case described as parotid swelling.

SANDOZ PHARMACEUTICALS, HANOVER, N.J. SANDOZ 69 384

Mild ulcerative colitis may be triggered here...



In mild ulcerative colitis, a number of factors can precipitate an attack: for instance, dietary indiscretion, such as eating raw foods, or emotional overreaction, such as that aroused by financial difficulties. No matter what causes the patient's sensitive colon to "act up," he soon suffers from acute discomfort...and often, from anxiety and apprehension as well. Such patients frequently respond well to adjunctive dual-action Librax® therapy.

Librax combines, in a single convenient capsule, the well-known antianxiety effect of Librium® (chlordiazepoxide HCl) and the dependable anticholinergic /antispasmodic effect of Quarzan® (clidinium Br). Therefore, as Librax helps to relieve the patient's excessive anxiety and reduce his overreaction to stress, it also at the same time, helps to control hypersecretion and hypermotility, thus relieving spasm and abdominal discomfort.

With Librax, the dosage schedule is simple: 1 or 2 capsules, t.i.d. or q.i.d., will in most cases bring the patient significant relief of both the emotional and physical elements that contribute to his psychovisceral disorder.

Before prescribing, please consult complete product information, a summary of which follows.

INDICATIONS: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

CONTRAINDICATIONS: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide.

WARNINGS: Caution patients about possible combined effects with alcohol and other C depressants. As with all CNS-acting drugs, tion patients against hazardous occupations e- quiring complete mental alertness (*e.g.*, opera machinery, driving). Though physical and chological dependence have rarely been repo on recommended doses, use caution in ministering Librium (chlordiazepoxide hy chloride) to known addiction-prone individ or those who might increase dosage; withdra symptoms (including convulsions), follo discontinuation of the drug and similar to t seen with barbiturates, have been reported. of any drug in pregnancy, lactation, or in wo of childbearing age requires that its pote benefits be weighed against its possible haza As with all anticholinergic drugs, an inhib effect on lactation may occur.

PRECAUTIONS: In elderly and debilita limit dosage to smallest effective amount to clude development of ataxia, oversedation confusion (not more than two capsules per initially; increase gradually as needed and t

or here.



ated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

ADVERSE REACTIONS: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver-function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diet.

two good reasons for prescribing LIBRAX®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

ROCHE
ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.

heavenly relief
for unearthly cough

Benylin®
EXPECTORANT



Each fluidounce contains: 80 mg. Benadryl® (diphenhydramine hydrochloride, Parke-Davis); 12 grains ammonium chloride; 5 grains sodium citrate; 2 grains chloroform; 1/10 grain menthol; and 5% alcohol.

An antitussive and expectorant for control of coughs due to colds or of allergic origin, BENYLIN EXPECTORANT is the leading cough preparation of its kind. BENYLIN EXPECTORANT tends to inhibit cough reflex... soothes irritated throat membranes. And its not-too-sweet, pleasant raspberry flavor makes BENYLIN EXPECTORANT easy to take.

PRECAUTIONS: Persons who have become drowsy on this or other antihistamine-containing drugs, or whose tolerance is not known, should not drive vehicles or engage in other activities requiring keen response while using this preparation. Hypnotics, sedatives, or tranquilizers if used with BENYLIN EXPECTORANT should be prescribed with caution because of possible additive effect. Diphenhydramine has an atropine-like action which should be considered when prescribing BENYLIN EXPECTORANT.

ADVERSE REACTIONS: Side reactions may affect the nervous, gastrointestinal, and cardiovascular systems. Drowsiness, dizziness, dryness of the mouth, nausea, nervousness, palpitation, and blurring of vision have been reported. Allergic reactions may occur.

PACKAGING: Bottles of 4 oz., 16 oz., and 1 gal.

Parke, Davis & Company
Detroit, Michigan 48232

PARKE-DAVIS

410R69

for the patient who has "everything"...



Cheracol® Capsules

for temporary relief of minor aches, pains, headache and stuffy nose due to the common cold

Each capsule contains:

Chlorpheniramine Maleate	2 mg.
Orthoxine® (methoxyphenamine) Hydrochloride	25 mg.
Aspirin	324 mg. (5 grs.)
Caffeine Anhydrous	32.4 mg. (½ gr.)

Indications: Temporary relief of symptoms of common cold. Not recommended for children under 12 years.

Warnings: Frequent or prolonged use may cause nervousness, restlessness or drowsiness. Patients should not drive or operate machinery while taking this medication. Use with caution in patients with high blood pressure, heart disease, diabetes or thyroid disease.

Dosage: One capsule every 4 hours. Not more than four capsules should be taken in 24 hours.

Supplied: Available in packages of 24 capsules.

---

also available:

Cheracol D® Syrup

for temporary relief of coughs due to common colds and minor throat irritations

Each fluid ounce contains:

Dextromethorphan Hydrobromide	7/10 gr. (60 mg.)
Chloroform*	2 grs.
Glyceryl Guaiacolate	1⅔ grs.
Ammonium Chloride	8 grs.
Antimony Potassium Tartrate	1/12 gr.
Alcohol	3%

with white pine and wild cherry bark

*Some loss of chloroform is unavoidable.

Dosage: *Adults* – 1 to 2 teaspoonfuls. *Children 6 to 12 years* – ½ to 1 teaspoonful. *Children 2 to 6 years* – ½ teaspoonful. Repeat in four hours, if necessary, but not more than four times in 24 hours.

This preparation should not be administered to children under two years of age unless directed by a physician.

Supplied: Bottles of 2 and 4 fluid ounces.

© 1969 BY THE UPJOHN COMPANY

693 PR 5354.1

UPJOHN INTER-AMERICAN CORPORATION
CAPARRA/PUERTO NUEVO

Upjohn



When disease is ruled out and psychic tension is implicated

Valium® (diazepam) helps relax the patient and relieve his somatic symptoms

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

DISPLAY
SHELVES



BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

MEDICAL THERAPY OF DISSECTING ANEURYSM OF AORTA 397
Francisco Olazábal Jr., MD and Luis G. Borrego, MD

OPEN HEART SURGERY AT THE SAN JUAN CITY HOSPITAL 402
E. A. Defendini, MD, J. O. Just Viera, MD and J. L. Rodríguez Pagán, MD

FREQUENCY OF RUBELLA ANTIBODY IN PUERTO RICAN ADULTS 406
D. Méndez Cashion, MD, John L. Sever, MD, Rubén Nazario, MD and Mary R. Gilkeson, BS

DIAGNOSIS OF INBORN ERRORS OF METABOLISM ... 409
Lewis A. Barness, MD

FRACTURE DISLOCATION OF THE ANKLE WITH FIXED DISPLACEMENT OF THE FIBULA BEHIND THE TIBIA 412
E. Blas Ferraiouli, MD, FACS,, DABS and Rafael Fernández, MD, DABO

A REFERENCE FILE: THE EASY WAY ... 414
Elí A. Ramírez, MD

ACTUALIDADES MEDICAS 416

THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON
26 JAN 1970

VOL. 61 NOVIEMBRE, 1969 NUM. 11

if he exercises



if he stops smoking if he takes Arlidin® (nylidrin HCl) the improvement can be significant!

in peripheral vascular disease: **EXERCISE** "Exercise is the specific physiologic stimulus for producing vasodilation in skeletal muscle."[1] **SMOKING** "The first and most important consideration of treatment is firm insistence that the patient stop smoking immediately and permanently. The reason for this is the powerful vasoconstricting action of smoking which is responsible for diminishing the peripheral circulation to a great degree."[2] **ARLIDIN** The overall physiological effect of a therapeutic agent should be similar to exercise—that is, both to increase cardiac output and to produce peripheral vasodilation.[3] "The ideal agent should be administered in the same way that we prescribe exercise—that is, three or four times a day for many years rather than for several weeks. The therapeutic goal is to increase blood flow through the capillary beds by way of a patent and constantly expanding collateral blood supply. At this time, I am aware of only one agent which fulfills the requirements as outlined above, namely nylidrin (Arlidin)."[3]

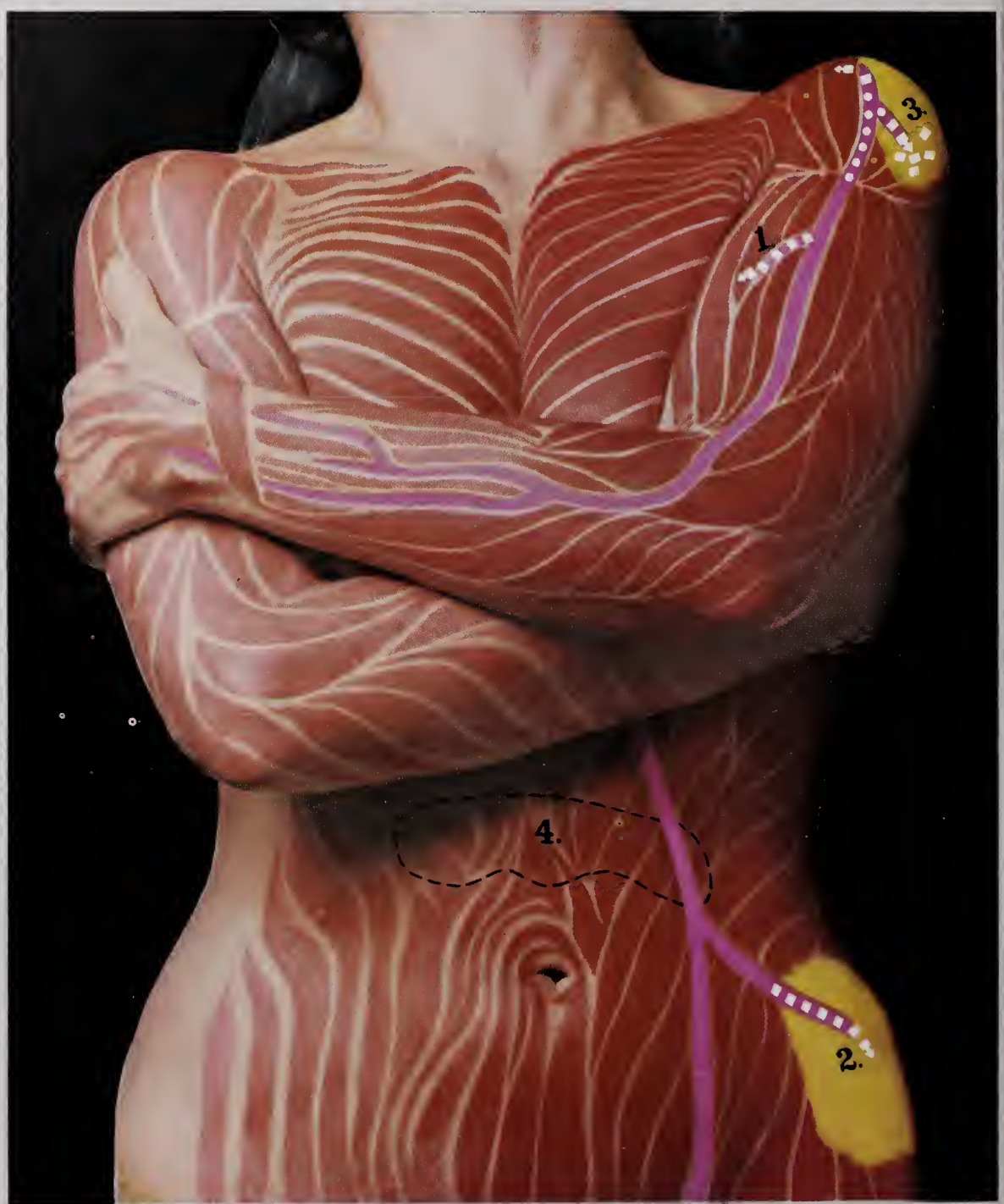
Contraindications: Acute myocardial infarction. (Fol lowing myocardial infarction, the initiation or reestab lishment of this therapy should be undertaken in th same way as physical exercise. After a reasonable heal ing period, gradual upward adjustment of dosage t therapeutic levels may be attempted.) **Precautions:** Us with caution in the presence of a recent myocardia lesion, paroxysmal tachycardia, severe angina pectori and thyrotoxicosis. **Adverse Reaction:** Occasional pal pitation. **Dosage:** ½ to 1 tablet (3 to 6 mg.) three o four times a day is the usual effective dosage; increased if necessary, to 2 tablets three or four times a day Parenterally, 0.5 cc. by subcutaneous or intramuscula injection; increased gradually to 1 cc. one or more time daily, as needed. **Available:** Tablets: 6 mg. scored, bot tles of 50, 100, and 500. Parenteral: 5 mg. per cc., 1 cc ampuls (6 per box); 10 cc. multiple-dose vials (1 pe box). **References:** 1. deCrinis, K., Redisch, W. an Steele, J.M.: Proc. Soc. Exper. Biol. Med. *102*:29, 1959 2. Samuels, S.S.: Med. Times *88*:332, 1960. 3. Karpman H.L.: Canad. Med. Ass. J. *94*:457, 1966.

arlidin®
(nylidrin HCl)

USV

USV PHARMACEUTICAL CORPORATION
New York, N.Y. 10017

Why DBI-TD (phenformin HCl) is the only significant advance in oral diabetes therapy since sulfonylureas



□ glucose ○ insulin

1 Only DBI-TD does more than just lower blood sugar–it directs sugar primarily to where it is most needed... in muscle.

In the maturity-onset diabetic, blood sugar is elevated, but apparently not enough glucose enters muscle. Unlike other agents, DBI-TD increases glucose utilization primarily in skeletal muscle where sugar is needed.

2 Only DBI-TD actually promotes weight loss in the maturity-onset diabetic who is overweight.

All oral drugs *except* DBI-TD increase insulin release, which suppresses lipolysis and can accelerate lipogenesis. Thus DBI-TD, by avoiding insulin oversecretion, appears to ease—rather than aggravate—the weight problem in patients unresponsive to diet alone.

3 Only DBI-TD, among oral agents, helps counterbalance the inefficient action of the diabetic's own insulin.

There is increasing evidence that many overweight maturity-onset diabetics have higher than normal blood insulin levels, but this insulin is not efficient in promoting muscle glucose uptake. Unlike all other oral agents, DBI-TD helps control diabetes by selectively moving sugar into muscle without further increasing insulin levels.

4 Only DBI-TD, because of its unique action, reduces the risk of secondary failure and hypoglycemic reaction.

DBI-TD is the only agent that lowers blood sugar without stimulating the release of insulin from the pancreas. Secondary failures are infrequent with DBI-TD, and there is relative freedom from hypoglycemic reaction when DBI-TD is used alone.

a more physiological approach to begin with

DBI®-TD

(phenformin HCl)

timed-disintegration capsules 50 mg.

Dosage: 1 to 3 capsules daily. **Side Effects:** Gastrointestinal, occurring more often at higher dosage levels, abate promptly upon dosage reduction or temporary withdrawal. **Adverse Reaction:** Urticaria. **Precautions:** Occasionally an insulin-dependent patient will show "starvation" ketosis (acetonuria without hyperglycemia) which must be differentiated from "insulin lack" ketosis which is accompanied by acidosis, and treated accordingly. Lactic acidosis has been reported in nondiabetics and diabetics treated with insulin, with diet, and with DBI. Question has arisen regarding possible contribution of DBI to lactic acidosis in patients with renal impairment and azotemia and also those with severe hypotension secondary to myocardial or bowel infarction. Periodic B.U.N. determination should be made when DBI is administered in the presence of chronic renal disease. DBI should not be used when there is significant azotemia. Any cardiovascular lesion that could result in severe or sustained hypotension, which may itself lead to development of lactic acidosis, should be considered cause for immediate discontinuation of DBI at least until normal blood pressure has been restored and is maintained without vasopressors. Should lactic acidosis occur from any cause, vigorous attempts should be made to correct circulatory collapse, tissue hypoxia, and pH. **Contraindications:** Severe hepatic disease, renal disease with uremia, cardiovascular collapse. Not recommended without insulin in acute complications of diabetes (metabolic acidosis, coma, severe infections, gangrene, surgery). ***Pregnancy Warning:*** *During pregnancy, until safety is proved, use of DBI, like other oral hypoglycemic drugs, is to be avoided.* **Also Available:** DBI tablets 25 mg. *Consult product brochure.*

USV

USV PHARMACEUTICAL CORP., New York, N.Y. 10017
Producers of ARLIDIN® (nylidrin HCl)



Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®

to the clinical staff
and to the researcher...

The Ohio Model 560 is much more than a respirator



The new Ohio Model 560 Respirator is a volume controlled unit which will deliver tidal volume to the patient regardless of resistance and compliance of the patient's pulmonary systems. It is an extremely valuable and versatile instrument for intensive care, post-operative, and emergency room areas.

This respirator may be programmed either to assist patient ventilation, with varying degrees of control, or to completely take over and place the patient under respirator control. Tidal volume is adjustable from 100 cc to 2000 cc with adjustable expiratory times.

A computerized "sigh" or deep breath may be easily introduced to the patient on a programmed basis at intervals of 2, 4, 6, 8, or 10 minutes. After a deep breath is delivered the computerized circuit automatically lengthens expiratory time to twice the setting used previously for tidal volume only — then automatically resumes its preset breathing pattern.

Other features include manual pushbutton initiation of both inspiration and expiration, an ultrasonic humidifier which delivers 0 to 3 cc per minute minimum and an alarm system monitors low pressure, bellows travel, loss of power, and lesser concentration of oxygen than selected. For added safety, the patient circuit opens automatically permitting the patient to breathe to atmosphere in the event of machine malfunction. An accessory system permits a range of 0 to −20 cm. H_2O negative pressure.

general gases & supplies corp.

Jaspe No. 21 Centro Comercial Villa Blanca
Caguas, P. R. 743-6595

Barbosa No. 11
Bayamón, P. R. 785-6090

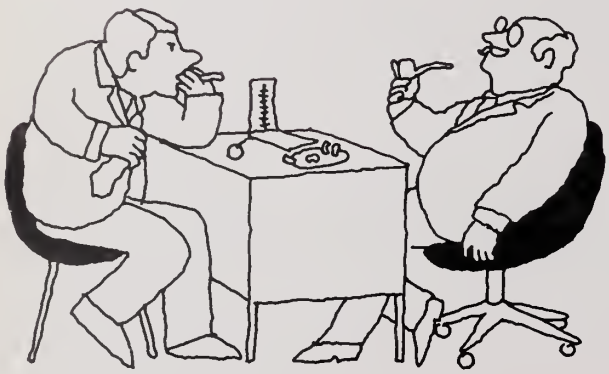
Intersección Ave. Central y Carr. Guaynabo
Guaynabo, P. R. 783-4515

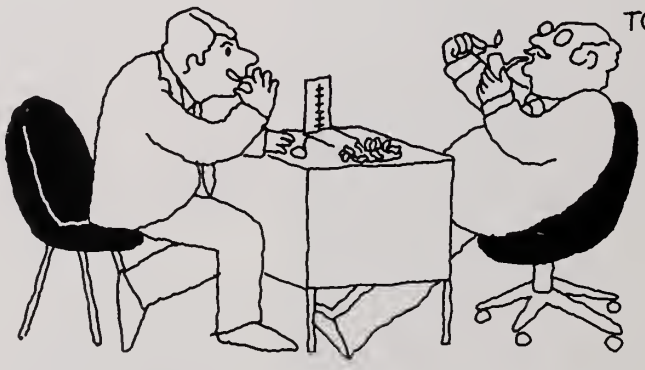
Condominio Los Flamboyanes
Ave. 65th Infanteria cruce Trujillo Alto
Río Piedras, P. R. 764-1940

Calle Muñoz Rivera esq. Ave. Expreso
Ponce. P. R. 843-0425

Manuel Camuñas No. 10
Urb. Industrial Tres Monjitas
Hato Rey, P. R. 765-7445

The Apprehensive Hypertensive

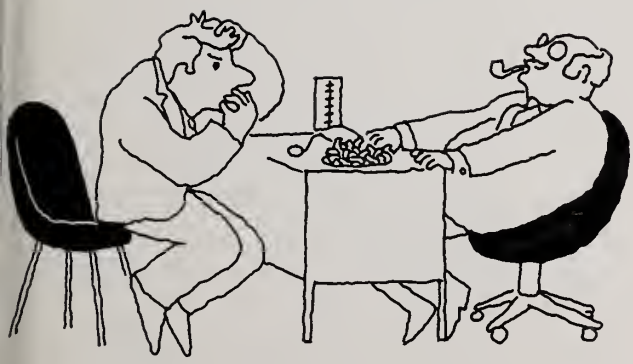


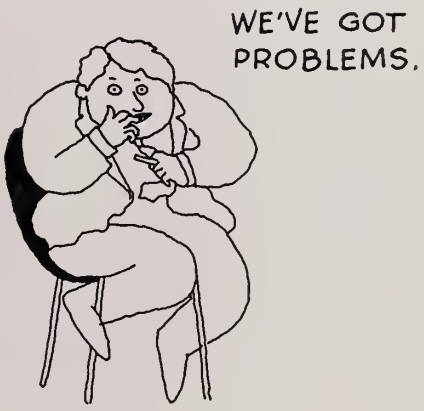


Regroton® to lower blood pressur

chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

Regroton®: chlorthalidone 50 mg., reserpine U.S.P. 0.25 mg.
Indications: Hypertension. *Contraindications:* History of mental depression, hypersensitivity, and most cases of severe renal or hepatic diseases. *Warning:* With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has frequently been required and deaths have occurred. Discontinue coated potassium-containing formulations immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur. Discontinue one week before electroshock therapy, and if depression or peptic ulcer occurs. *Use in pregnancy:* Because chlorthalidone may cross the placental barrier and appear in cord blood and thiazides may appear in breast milk, this drug should be used with care in pregnant patients and nursing mothers. When used in women of childbearing age, the potential benefits of the drug should be weighed against the possible hazards to the fetus. Use of chlorthalidone may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. Incr respiratory secretions, nasal congestion, cyanosis and anorexi occur in infants born to reserpine-treated mothers. *Precautions:* A pertensive therapy with this drug should always be initiated cau in postsympathectomy patients and in patients receiving gan blocking agents, other potent antihypertensive drugs, or curare. R dosage of concomitant antihypertensive agents by at least one-h avoid hypotension during surgery, discontinue therapy with this two weeks prior to elective surgical procedures. In emergency su use, if needed, anticholinergic or adrenergic drugs or other supp measures as indicated. Because of the possibility of progress renal damage, periodic kidney function tests are indicated. Disco if the BUN rises or liver dysfunction is aggravated. Hepatic com be precipitated. Electrolyte imbalance, sodium and/or potassiu pletion may occur. If potassium depletion should occur during th the drug should be discontinued and potassium supplements provided the patient does not have marked oliguria. Take particul in cirrhosis or severe ischemic heart disease and in patients rec





and allay anxiety in hypertension

corticosteroids, ACTH, or digitalis. Severe salt restriction is not recommended. Use cautiously in patients with ulcerative colitis or gallstones (biliary colic may be precipitated). Bronchial asthma may occur in susceptible patients. *Adverse Reactions:* The drug is generally well tolerated. The most frequent side effects are nausea, gastric irritation, vomiting, diarrhea, constipation, muscle cramps, headache, dizziness and acute gout. Other potential side effects include angina pectoris, anxiety, depression, bradycardia and ectopic cardiac rhythms (especially when used with digitalis), drowsiness, dull sensorium, hyperglycemia and glycosuria, hyperuricemia, lassitude, restlessness, transient myopia, impotence or dysuria, orthostatic hypotension which may be potentiated when chlorthalidone is combined with alcohol, barbiturates or narcotics, leukopenia, aplastic anemia, skin rashes, thrombocytopenia, agranulocytosis, nasal stuffiness, increased gastric secretions, nightmare, purpura, urticaria, ecchymosis, weakness, uveitis, optic atrophy and glaucoma, and pruritus. Eruptions and/or flushing of the skin, a reversible paralysis agitans-like syndrome, blurred vision, conjunctival injection, increased susceptibility to colds, dyspnea, weight gain, decreased libido, dryness of the mouth, deafness, anorexia, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Jaundice, xanthopsia, paresthesia, photosensitization and necrotizing angiitis are possible. *Average Dosage:* One tablet daily with breakfast. *Availability:* Pink, single-scored tablets in bottles of 100 and 1000. (B)46-600-C

For details, please see complete prescribing information.

Regroton®
chlorthalidone 50 mg.
reserpine U.S.P. 0.25 mg.

Geigy Pharmaceuticals
Division of Geigy Chemical Corporation
Ardsley, New York 10502

RE-6742

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistemicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:

Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

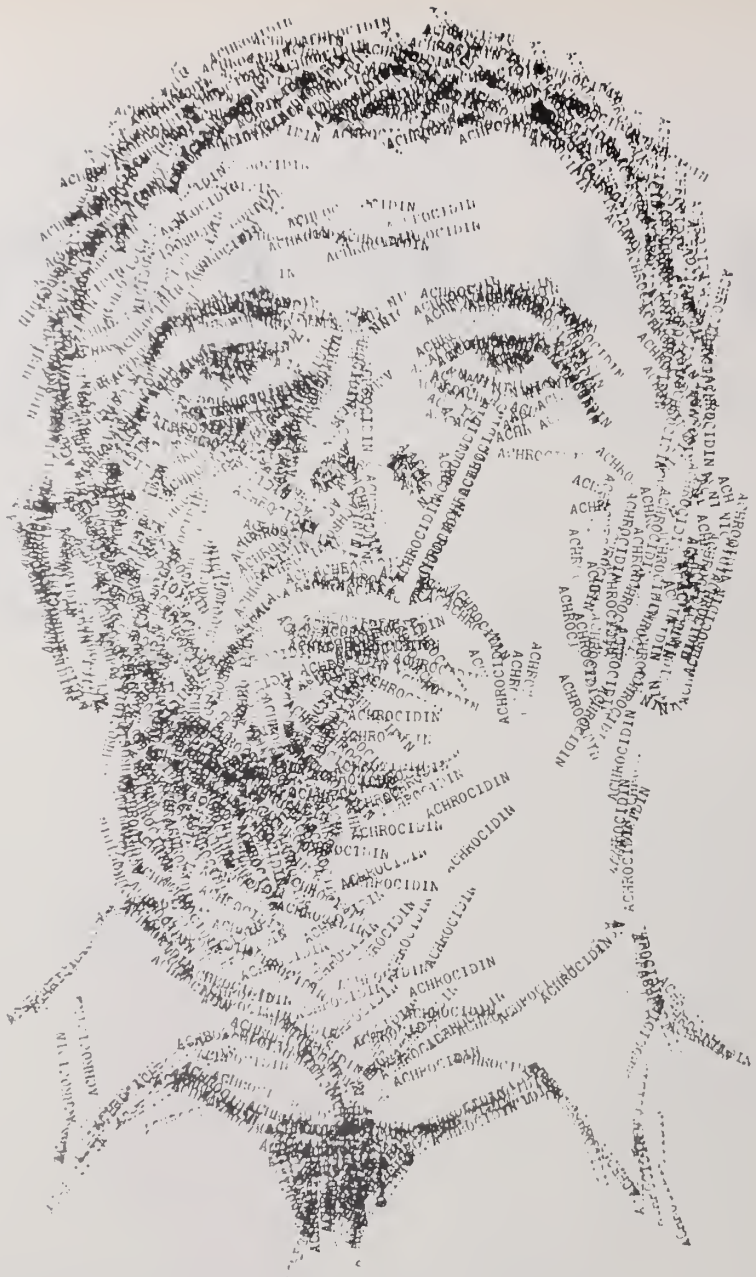
Anuncios y Suscripciones:

El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:

Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.



Achrocidin® Tablets and Syrup

Tetracycline HCl—Antihistamine—Analgesic Compound

Each tablet contains: ACHROMYCIN® Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Caffeine 30 mg.; Salicylamide 150 mg.; Chlorothen Citrate 25 mg.

ACHROCIDIN Tetracycline HCl—Antihistamine—Analgesic Compound Tablets and Syrup are recommended for the treatm of tetracycline-sensitive bacterial infection which may complicate vasomotor rhinitis, sinusitis and other allergic diseases of upper respiratory tract, and for the concomitant symptomatic relief of headache and nasal congestion. For children and elde patients you may prefer caffeine-free ACHROCIDIN Syrup. Each 5 cc contains: ACHROMYCIN Tetracycline equivalen Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Salicylamide 150 mg.; Ascorbic Acid (C) 25 mg.; Pyrilamine Maleate 15 m

Contraindications: Hypersensitivity to any component.

Warning: In renal impairment, since liver toxicity is possible, lower doses are indicated; during prolonged therapy consider serum level determinations. Photodynamic reaction to sunlight may occur in hypersensitive persons. Photosensitive individuals should avoid exposure; discontinue treatment if skin discomfort occurs.

Precautions: Drowsiness, anorexia, slight gastric distress can occur. In excessive drowsiness, consider longer dosage intervals. Persons on full dosage should not operate vehicles. Nonsusceptible organisms may overgrow; treat superinfection appropriately. Treat beta-hemolytic streptococcal infections at least 10 days to help prevent rheumatic fever or acute glomerulonephritis. Tetracycline may form a stable calcium complex in bone-forming tissue and may cause dental staining during tooth development (last half of pregnancy, neonatal period, infancy, early childhood).

Adverse Reactions: *Gastrointestinal*—anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. *Skin*—maculopapular and erythematous rashes; exfolia dermatitis; photosensitivity; onycholysis, discoloration. *Kidney*—dose-related ris BUN. *Hypersensitivity reactions*—urtica angioneurotic edema, anaphylaxis. *Intracra* —bulging fontanels in young infants. *Te* yellow-brown staining; enamel hypopla *Blood*—anemia, thrombocytopenic purp neutropenia, eosinophilia. *Liver*—cholestas high dosage.

Upon adverse reaction, stop medication treat appropriately.

Lederle LEDERLE LABORATORIES, A Division of American Cyanamid Company, Pearl River, New York 10965



Diagnostic Products, Dow Chemical Inter-American, Ltd., 1500 S. D. Roosevelt Avenue Bldg., Caparra, Puerto Rico.

Blood chemistries, made to measure.

Diagnostest® reagent sets and instruments make up a quick, easy-to-use blood chemistry system that meets clinical laboratory requirements for precision and accuracy. It features premeasured reagent volumes in disposable glass cuvettes, plus disposable micropipettes. Standards are provided with every set. Diagnostest reagent sets are available for measuring hemoglobin, glucose, urea nitrogen, cholesterol, uric acid, total bilirubin, total serum protein, total serum globulin, albumin A/G ratio and LDH. With between-run precision of ±10% or better (depending on test) at 95% confidence limits. Write for our latest Technical Bulletin. We'll show you how Diagnostest measures up.

©The Dow Chemical Company

DOW

The AMBAR® SCRAPBOOK of

Obesity Oddities

FACT & LEGEND

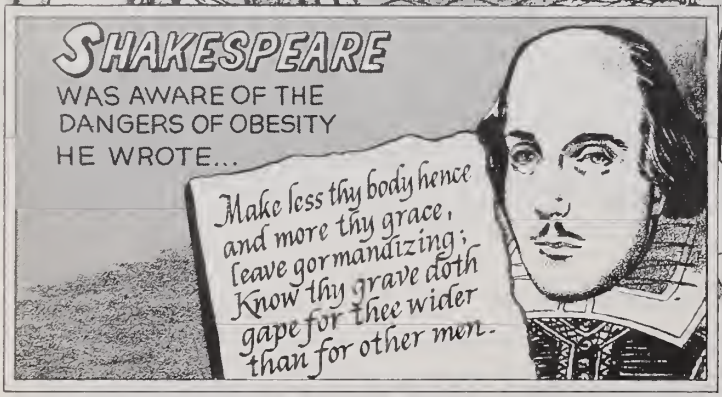
OBESITY WAS A MILITARY OFFENSE!

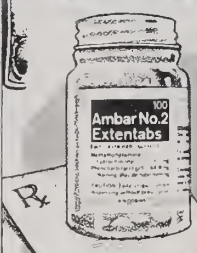
OVERWEIGHT ROMAN HORSEMEN WERE MADE TO FORFEIT THEIR MOUNTS AND BECOME FOOT SOLDIERS!



RECORDED ON AN ENGLISHMAN'S TOMBSTONE

SHAKESPEARE WAS AWARE OF THE DANGERS OF OBESITY HE WROTE...





THE COST OF **AMBAR EXTENTABS** IS APPROXIMATELY ONE HALF THAT OF OTHER LEADING APPETITE SUPPRESSANTS

AN IMPORTANT FACTOR IN LONG TERM THERAPY

CONTROL FOOD AND MOOD ALL DAY LONG WITH A SINGLE MORNING DOSE

AMBAR #2 EXTENTABS®

methamphetamine HCl 15 mg., phenobarbital 64.8 mg. (1 gr.) (Warning: may be habit forming).

One Ambar Extentab before breakfast can help control most patients' appetite for up to 12 hours. Methamphetamine, the appetite suppressant, gently elevates mood and helps overcome dieting frustrations. Phenobarbital, the sedative in Ambar, controls irritability and anxiety... helps maintain a state of mental calm and equanimity. Both work together to ease the tensions that erode the willpower during periods of dieting.

Also available: Ambar #1 Extentabs®—methamphetamine hydrochloride 10 mg., phenobarbital 64.8 mg. (1 gr.) (Warning: may be habit forming).

BRIEF SUMMARY/**Indications:** Ambar suppresses appetite and helps offset emotional reactions to dieting. **Contraindications:** Hypersensitivity to barbiturates or sympathomimetics; patients with advanced renal or hepatic disease. **Precautions:** Administer with caution in the presence of cardiovascular disease or hypertension. **Side Effects:** Nervousness or excitement occasionally noted, but usually infrequent at recommended dosages. Slight drowsiness has been reported rarely. See package insert for further details.

A. H. ROBINS COMPANY, RICHMOND, VA. 23220 A·H·ROBINS

MEDICAL THERAPY OF DISSECTING ANEURYSM OF AORTA

Francisco Olazabal, Jr., MD
Luis G. Borrego, MD

In 1965 Wheat, Palmer, Bartley and Seelman (1) described six consecutive patients with acute aortic dissection who were treated with aggressive hypotensive drug therapy all of whom survived. Their article appeared shortly after De Bakey and his colleagues (2) at Baylor University had reported their excellent results with surgical management of this condition. Although the appropriate choice between these two modalities of therapy is still controversial, some important guidelines have emerged in the ensuing three years. Four patients with acute dissecting aneurysms of the aorta treated medically will be presented and the current concepts of therapy in this condition will be discussed.

Case Reports

Case 1

A 61-year old ambulance driver was admitted on August 7th. 1968. A few hours before admission, on stepping out of his ambulance, the patient noticed the sudden onset of severe, constant, "renting", midabdominal pain, radiating to the anterior thighs and around both flanks to the back. At the Emergency Room a chest radiography revealed a markedly dilated aorta with suggestion of a double contour of the aortic knob and the patient was admitted to rule out an acute dissecting aneurysm of aorta. There was a history of hypertension discovered two years previously and treated with reserpine.

Examination on admission disclosed a ruddy looking, somewhat obese male, with a blood pressure of 150/90 mm Hg. All peripheral arterial pulses were full and equal. There was tenderness on deep palpation along the midline of the abdomen, at the level of the umbilicus, and slight percussion tenderness of the lumbar spine. Electroeardiogram showed left ventricular hypertrophy. Chest X-rays revealed a markedly dilated aorta.

On the morning following admission a right femoral retrograde aortogram was performed using the Seldinger technique. A disseeting aneurysm was demonstrated originating just distal to the left subclavian artery (Fig. 1). An additional injeetion at the descending aorta with films taken of the lower thoraeie and abdominal aorta revealed a double barreled aorta with dye moving more slowly down the false lumen and re-entering the true lumen just above the level of the renal arteries (Fig. 2). The coeliac axis and the renal arteries filled normally.

On admission, therapy was started with a trimethaphan infusion, and the systolic blood pressure monitored continuously and kept between 90 and 100 mm Hg. In addition, intramuseular reserpine was given, initially 1 mg. every four hours and subsequently 2.5 mg. every six hours. After the first two days the blood pressure was kept at normotensive levels with the use of a low salt diet, guanethidine, alpha methyl dopa and ehlorothiazide and he was finally discharged on September 13, 1968 on alpha methyl dopa and ehlorothiazide. Since then he has remained asymptomatic.



Fig. 1: *Retrograde aortogram demonstrating a Type III dissecting aneurysm originating just distal to the left subclavian artery (Between arrows).*

From the Department of Medicine, San Juan City Hospital.

Presented at the Annual Meeting of the Puerto Rico Medical Association, November 1968.



Fig. 2: *Double-barreled aorta with re-entry (arrow) just above renal arteries.*

Case 2

A 55-year old male awakened at 4:00 A. M. on the day of admission, September 20, 1967 and went to the bathroom where he suddenly developed severe sharp chest pain and dyspnea. The pain radiated to his abdomen and back.

The patient had been hospitalized two years previously with pulmonary embolic disease. He was found to be hypertensive in 1956 and treated since then with oral hypotensive drugs. His family history was interesting in that his father was diagnosed as having an aortic aneurysm and his uncle died of a "ruptured" aneurysm.

Physical examination revealed a rather obese, plethoric white male with an elevated blood pressure. Funduscopic examination disclosed arteriolar narrowing. All arterial peripheral pulses were full and equal. There was a grade 2/6 systolic murmur at the second right intercostal space and epigastric tenderness. He was found to be hypokalemic with a serum potassium of 2.7 meq/l. An electrocardiogram revealed non-specific T wave changes and left ventricular hypertrophy and a chest X-ray revealed a widened aorta.

The patient was taken from the Emergency Room to the Radiology Department and a venous aortogram demonstrated a dissecting aneurysm of the aorta. The patient was admitted to the Coronary Care Unit and treatment started with a trimethaphan infusion which lowered his blood pressure to 110/80 mm Hg. with a good urinary output. Guanethidine was given by mouth 50 mg. bid. The pain, that previously had not responded to meperidine, was relieved after the blood pressure was lowered. While reviewing the films with the surgical team, doubts arose as to the exact type of dissecting aneurysm and, consequently, a repeat study with injection in the aorta was recommended. This was done on the day following admission using the right transbrachial retrograde approach with the Seldinger technique. Serial films revealed the dissection to begin just distal to the origin of the left subclavian artery (Fig. 3). About 15 minutes after the injection was completed and with the catheter tip at the brachial artery, the patient suddenly developed ventricular tachycardia which rapidly progressed to ventricular fibrillation. Mouth-to-mouth breathing and closed heart massage with subsequent direct current countershock restored a normal sinus mechanism. The patient was returned to the CCU and in the following five days had twelve additional episodes of ventricular tachycardia and fibrillation. Three of them converted with intravenous procainamide and the other nine with direct current countershock. The patient received intravenous potassium, procainamide, and quidine in various combinations. On the fifth day and with his serum potassium at normal levels, digitalization was started orally and the bouts of ventricular tachycardia ceased. He was discharged on October 16th. 1967 on maintenance digoxin and 50 mg. guanethidine daily, is followed by his private physician, and remains well. There were no neurological sequelae as a result of his arrhythmias and these have not recurred.



Fig. 3: *Right brachial retrograde aortogram showing a Type III dissection (Between arrows).*

Case 3

A 67-year old carpenter was working strenuously on a roof on October 8, 1966 when he suddenly developed se-

vere epigastric pain, diaphoresis, dizziness and a sensation of oppression in the chest. The pain radiated to the right upper abdominal quadrant and to the lumbar area.

On admission, physical examination revealed an elevated blood pressure. Funduscopic examination disclosed arteriolar narrowing and A/V nicking. Arterial pulses were all normal and equal. The heart was of normal size and there was a localized, grade 2/6 systolic murmur at the fourth LICS in the mid-clavicular line. There was diffuse abdominal tenderness. Radiologic evaluation disclosed probable widening of the aorta suggestive of a dissecting aneurysm (Fig. 4). A venous angiogram revealed a dissecting aneurysm of the aorta extending from just distal to the origin of the left subclavian to the descending aorta at the level of T-11 (Fig. 5). The patient was initially treated with

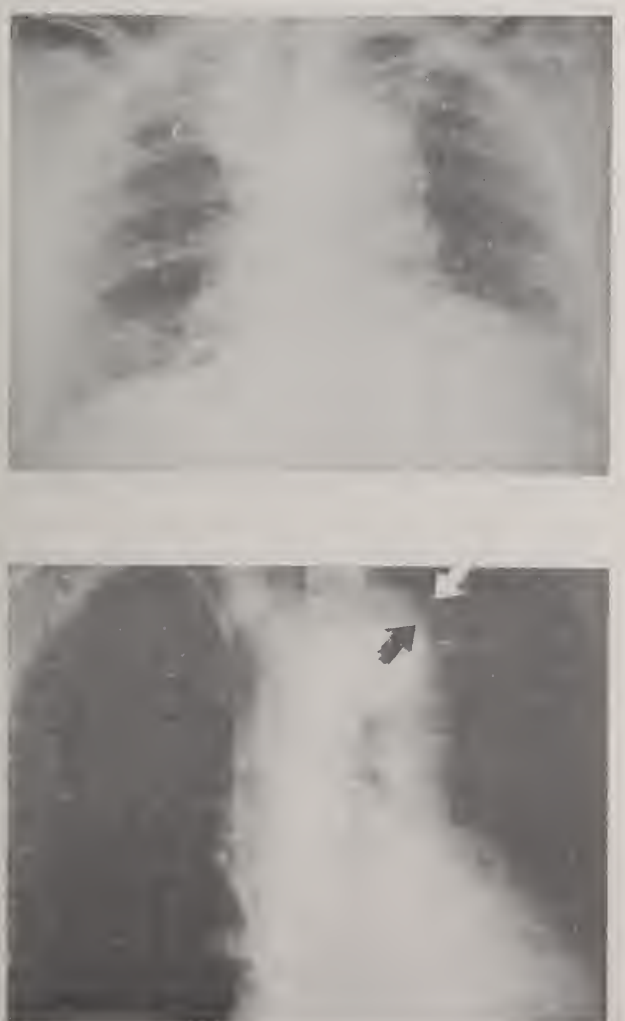


Fig. 5: *Type III dissecting aneurysm revealed by venous angiogram (Between arrows).*

trimethaphan infusion and the systolic blood pressure kept at approximately 90 mm Hg. He maintained a good urinary output during therapy. On October 12th, the patient was taken to the operating room for elective repair, having remained in a stable condition. A left atrial to femoral artery bypass was begun and the aneurysm exposed; it was found to arise 1 cm distal to the origin of the left subclavian artery. During the procedure there was an accidental tear of the left atrium and the patient died of an exanguinating hemorrhage.

Case 4

A 43-year old white male suddenly developed stabbing precordial pain, diaphoresis, dyspnea and dizziness one day prior to admission. The pain radiated to the lumbar area and to the right leg. Because of recurrence of pain he was admitted on July 8, 1965.

The patient had been previously admitted in 1964 with hypertension. Evaluation at that time disclosed a blood pressure of 200/130 mm Hg. Renograms were interpreted as showing advanced bilateral renal disease and aortography revealed an aneurysmal dilation of the left renal artery with calcified walls. He was treated with chlorothiazide, alpha methyl dopa and reserpine but continued to have blood pressures around 180/110 mm Hg. and to complain of occipital headaches and blurry vision.

Examination on admission revealed hypertension with diminished blood pressure in the right leg. There was grade 2 hypertensive retinopathy, cardiomegaly, a grade 2/6 soft systolic murmur at the cardiac apex, bilateral flank and right lower quadrant tenderness, diminished pulses and weakness of the right leg. Chest X-ray revealed a widened aortic shadow highly suggestive of a dissecting aneurysm of the aorta.

The day following admission, after surgical consultation, the patient was treated with a trimethaphan infusion and his systolic blood pressure maintained at 100 mm Hg. With this, the patient's pain disappeared and he rested quietly. Because of poor urinary output in spite of hydration and intravenous mannitol the blood pressure was subsequently raised to 140 mm Hg. Guanethidine was also given in dosages of 50 mg. every 12 hours. The trimethaphan infusion was maintained for three days and then parenteral reserpine therapy was instituted. Five days following admission the patient became restless and incoherent and the appearance of an aortic insufficiency murmur was noted. Systolic pressure remained at 140 to 160 mm Hg and urinary output at 30 cc per hour. On the eighth day after admission the patient suddenly died while sitting in bed. Post mortem examination confirmed the presence of a dissecting aneurysm of the aorta and hemopericardium with tamponade.

Discussion

Before any therapy is instituted in dissecting aneurysm of the aorta the diagnosis must be made or, at least, suspected. All patients with acute dissection have severe pain. The only exception are those patients who develop a severe neurological deficit as a result of their dissection. The pain may be in the chest, neck, abdomen, back or even in the extremities and, as shown in our cases, the initial impressions include a variety of cardiovascular, gastrointestinal and

neurological conditions (3, 4). The most important aid in diagnosis is a high index of suspicion. This is particularly important in patients who present with an apparent myocardial infarction with atypical features or when a probable myocardial infarction is associated with a stroke.

Once the diagnosis is suspected, serial chest X-rays, preferably standing PA views of the chest, are helpful in screening suspected cases. An altered aortic shadow, either widening of the arch or a double contour, is present in almost all cases. Repeated evaluation of all peripheral pulses have been of value in some patients but they may be normal and equal as in three of our four cases. Angiography is needed in most patients to establish the diagnosis and the type of dissection. This is usually best done by retrograde aortography and must be done immediately if the diagnosis is unclear, usually once an acute myocardial infarction has been ruled out and drug therapy started. If the diagnosis is fairly certain and a good response to drug therapy has been obtained one usually waits a day or so until the patient's condition is stable.

Surgical therapy of dissecting aneurysm of the aorta varies with the type of dissection (6). The type of dissection determines the surgical approach, the type of circulatory bypass, the complications encountered, the indications for surgery and the overall results. According to De Bakey's classification, Type I dissections are those having the intimal tear in the ascending aorta and in which the dissection extends distally, sometimes extending into the major terminal branches of the aortic arch. Type II dissection is limited to the ascending aorta and Type III involves the descending thoracic aorta at or just distal to the origin of the left subclavian artery and extending distally for a varying distance, Type I and Type II are associated with aortic valve regurgitation due to annular dilatation or to loss of support for the valve commissural attachments.

Surgical treatment for Type I dissections involve a median sternotomy, complete cardiopulmonary bypass, transection of the ascending aorta with obliteration of the false lumen by approximation with a continuous suture and end to end anastomosis. For Type II the procedure resembles that for Type I except that resection and graft replacement of the entire ascending aorta is made. Aortic valve regurgitation is corrected concomittantly by annuloplasty, bicuspidization or prosthetic replacement. In Type III excision and graft replacement is made under a pump bypass of left ventricle to femoral artery. Best reported results in acute dissection are those of De Bakey and his collaborators (7) who, in their series of 179 patients had a 40 percent mortality in *acute* Type I dissections and 19 percent in *acute* Type III dissections. The surgical team at Columbia-Presbyterian Hospital have had a 30 percent mortality in Type I and 45 percent mortality in Type III. Other groups have reported mortalities of 40 and even 60 percent.

It is well known that some patients with chronic aortic dissections live for years. Untreated *acute* aortic dissection has a grave prognosis, however. The initial mortality is only 3 percent but it climbs to 30 percent in the first 24 hours, 60 percent in 3 weeks, 80 percent in 3 months and 93 percent in one year (8). Wheat and his co-workers, noticed that few patients died of their initial tear but, instead, died from progressive dissection and eventual rupture. Further diseased media by an intramural hematoma is dependent on two main factors: one is impulse, or systolic ejection force times time and the other is mean systolic blood pressure. By the use of drugs reducing the magnitude of these two forces a form of therapy was proposed by them which would prevent further dissection and carry over the patient from an acute to a subacute or chronic stage. This form of therapy is not meant to be a substitute for surgery. It allows surgery, when indicated, to be performed electively later on with much better results.

During the last three years the value of intensive drug therapy has been established. The current concensus regarding therapy of acute aortic dissection may be summarized as follows. First, there are a few patients for whom very little can be done, either surgically or medically (9). These patients are terminal or already dead when first seen or diagnosed. Usually, however, the patient remains stable for a period of time allowing an evaluation to be made and drug therapy started. Emergency surgery in acute dissection is indicated if the patient's aneurysm is actively leaking, if significant aortic insufficiency, not readily controlled by medical means, is present, if a major terminal aortic branch is occluded or if rapid deterioration persists. In these cases surgical treatment may be the patient's only chance (10). If drug therapy fails to lower the patient's blood pressure effectively, particularly if a renal artery appears to be involved, surgery should be done as soon as possible. On the other hand, if there is a major contraindication to surgery making the patient a poor operative risk, if the site of origin cannot be identified or if it seems to be in the aortic arch itself, surgeons are usually very

reluctant to operate and vigorous medical therapy is the only choice (11). This leaves about 50 percent of patients who present with systolic blood pressures over 120 mm Hg and in whom initial drug therapy produces a sustained lowering with disappearance of pain. They continue having a good urinary output. Serial chest films reveal no further widening of the aortic shadow and no intracavitary bleeding. Repeat examinations disclose no major vessel occlusion nor development of significant aortic insufficiency. These patients do best with continued medical therapy. They need follow up and strict control of their blood pressures when ambulatory. Surgery may be done electively if further dilatation of their diseased segment is observed or if any complicating factor persists but many have been found to have an incredibly uncomplicated and asymptomatic course.

The drugs used for therapy must have the dual action of reducing blood pressure and also reducing impulse. Not all hypotensive drugs have this dual action. Trimethaphan, 1 mg per cc intravenously, is immediately effective but requires constant medical monitoring of blood pressure, central venous pressure and urine output. Parenteral reserpine, beginning with 1 mg. intramuscular doses, is effective in two hours and oral guanethidine in 48 hours. Treatment is usually started with trimethaphan and parenteral reserpine aiming to maintain the blood pressure at about 100 mm Hg systolic. Oral guanethidine is also begun immediately in order to have its effect by the time the patient becomes refractory to trimethaphan which usually happens after 48 hours. Chlorothiazide potentiates the action of these drugs but hypokalemia must be prevented. Alpha methyl dopa may be substituted for guanethidine. Oral reserpine, 1 mg. per day is given when the patient is stable and parenteral medication is discontinued. Patients should be ambulated as soon as their blood pressure is stabilized. The average hospitalization is three to four weeks and they are then followed closely in an outpatient basis.

Summary

We present four patients with acute dissecting aneurysms of the aorta treated initially with hypotensive drugs. After reviewing the recent literature on the medical therapy of this condition, the current management of aortic dissection is discussed. In some patients medical therapy, alone, permits prolonged survival. In others, it allows surgery to be performed electively, with much better results, after the acute dissection has stabilized. Criteria for selection of the initial mode of therapy in acute cases is given.

Resumen

Hemos presentado cuatro pacientes con disección aguda de la aorta tratados inicialmente con drogas hipotensoras. Después de revisar las publicaciones recientes sobre el tratamiento médico de esta condición enumeramos los conceptos modernos sobre el tratamiento de disección aortica. En algunos pacientes el uso exclusivo de tratamiento médico permite una supervivencia prolongada. En otros, esto permite que las intervenciones quirúrgicas se hagan en forma electiva, mejorando así los resultados de la cirugía. Se discute, además, la selección inicial de terapia médica o quirúrgica, en casos agudos.

References

1. *Wheat, M. W., Palmer, R. F., Bartley, T. D., and Seelman, R. C.:* Treatment of dissecting aneurysm of the aorta without surgery. J. Thoracic Cardiovas. Surg. 50: 364, 1965.
2. *De Bakey, M. E. et al:* Surgical management of dissecting aneurysm of the aorta. J. Thoracic and Cardiovas. Surg. 49: 130, 1965.
3. *Hume, D. M. and Potter, R. R.:* Acute dissecting aortic aneurysm surgery 53: 122, 193.
4. *Erb., B. D. and Tullis, I. F.:* Dissecting aneurysm of the aorta, Clinical features of 30 autopsied cases. Circulation 22: 315, 1960.
5. *Austen, W. C. and DeSanctis, R. W.:* Surgical therapy of dissecting aneurysm of the thoracic aorta. New Engl. J. Med. 272: 1314, 1965.
6. *Austen, W. C. et al:* Therapy of dissecting aneurysm. Arch. Surg. 95: 835, 1967.
7. *Grodin, C., David, P. R. Coor, D. A., Edwards, J. E. and Lillehei, C. W.:* Dissecting aneurysm of the thoracic aorta: A review of 52 cases with consideration of factors influencing prognosis. Ann. Thoracic Surg. 4: 29, 1967.
8. *Harris, P. D., Malm, J. R., Bigger, J. T. Jr., and Bowman, F. O. Jr.:* Follow up studies of acute dissecting aortic aneurysms managed with anti-hypertensive agents. Circulation 35 (Suppl. I): 1-183, 1967.
9. *Lindsay, J. Jr., and Hurst, J. W.:* Drug therapy of dissecting aneurysms: Some reservations. Circulation 37: 216, 1968.
10. *No Clay, R. M., Spittell, J. A. Jr., and McGoon, D. C.:* Prognosis in aortic dissection (dissecting aortic hematoma or aneurysm). Circulation 31: 665, 1965.
11. *Austen, W. G., and De Sanctis, R. W.:* Dissecting aneurysm S. Clin. North America 46: 573, 1966.

OPEN HEART SURGERY AT THE SAN JUAN CITY HOSPITAL

E. A. Defendini, MD
J. O. Just Viera, MD
J. L. Rodríguez Pagán, MD

Direct vision intracardiac surgery was first performed by F. John Lewis using hypothermia and inflow occlusion, in September 1952 (1). This method had the serious limitation of not allowing enough time to perform the operative procedure in an unhurried and deliberate manner, therefore it was applicable only to simple cardiac defects.

The era of open heart surgery as we know it today started on May 6, 1953. On that day, for the first time in history John H. Gibbon Jr. maintained for 26 minutes all the cardiopulmonary functions of an 18 year old girl with a heart lung machine while he carefully examined and accurately repaired a defect in the atrial septum (2).

In Puerto Rico the San Juan City Hospital was the site of pioneering efforts in intracardiac surgery during the 1957-1960 period. In spite of this very early work the establishment of a functional cardiac surgical service had to wait for the availability of personnel and adequate facilities for precise hemodynamic studies and diagnosis. These and other facilities became available recently when the San Juan City Hospital was transferred to the Puerto Rico Medical Center.

Material and Methods

This report analyzes the first 32 consecutive open heart cases performed at the San Juan City Hospital during our first year of open heart surgery at the Puerto Rico Medical Center. This includes patients with different congenital and acquired heart lesions (Table I). A roller pump, a disc oxygenator and hemodilution were used for cardiopulmonary bypass in all cases.

The first few patients were carefully selected in order not to tax a surgical group during its early efforts at team work but the sixth patient had a mitral valve replacement. This initial experience took place uneventfully and the first 18 cases were completed without mortality.

The congenital lesions repaired included 8 atrial septal defects of which 4 were the usual secundum type. Two of these patients had associated pulmonary anomalous venous return and 2 were over 60 years of age who had all the symptoms which pulmonary hypertension superimposed upon their septal defects. Both of these patients had had congestive heart failure treated with digitalis. The remaining 6 were asymptomatic.

Four patients needed work near the pulmonary valve. The method that yields the best results is open pulmonary valvulotomy and 3 patients underwent this operation. One patient had debanding of the pulmonary artery and the ventricular septal defect which caused the original banding procedure had closed. Two of the patients with pulmonary valvular stenosis or pulmonary artery banding had symptoms but the remaining 2 were asymptomatic. Three had gradients over 100 mm Hg across the valve, 1 had a gradient of only 80 mm Hg.

Three patients had routine ventricular septal defects and 1 patient with a ventricular septal defect had pulmonary banding previously. All had needed digitalis for congestive heart failure or were limited in activity in various degrees.

TABLE I: 32 CONSECUTIVE CASES OF OPEN HEART SURGERY WITH THE USE OF CARDIOPULMONARY BYPASS AT THE SAN JUAN CITY HOSPITAL

	No. of Cases	Deaths
Congenital Group		
Atrial septal defects	8	0
Pulmonary valvular stenosis	3	0
Debanding pulmonary artery	1	0
Ventricular septal defects	4	1
Tetralogy of Fallot	6	1
Acquired Group		
Mitral commisurotomy *	5	0
Mitral commisurotomy and annuloplasty	2	1
Mitral valve replacement	3	1
Totals	32	4
Mortality	12.5 percent	

** - Includes one patient with an atrial septal defect.*

From the Section of Thoracic Surgery, Department of Surgery, San Juan City Hospital.

Read at the Annual Meeting of the Puerto Rico Medical Association at San Juan, Puerto Rico, November 14, 1968.

Six patients with Tetralogy of Fallot had complete correction. These included 4 with cyanosis and anoxic spells, one was asymptomatic after a Blalock Taussig shunt and only one had the so called pink Tetralogy.

The acquired lesions were limited to mitral valve disease. We have discarded all closed methods for opening the mitral valve in favor of open heart surgery because of the unquestionable proven superiority of direct vision over blind methods. Three patients had mitral valve replacement and 7 had open mitral valvuloplasty or commisurotomy as needed. As a group, they had had symptoms for an average of 9 years. All had had episodes of congestive heart failure before operation and were receiving digitalis. The whole gamut of symptoms due to mitral valve disease, from chest pain after exertion to frank hemoptysis was well represented. Six had arrhythmias of varying severity, 4 had mitral insufficiency, 2 had aortic insufficiency, 1 had had a cerebral embolic episode, another had a thrombus in the left atrium and 4 had calcified mitral valves. Most of the patients suffering from acquired heart diseases were severely ill and 2 of them were in a very critical condition preoperatively.

The duration of symptoms classified as to the different types of lesions are shown on Table II. The hospital stay is shown on Table III. We have now lowered this considerably. The average perfussion time was 1 hour 18 minutes, varying in range from 20 minutes to 3 and a half hour. Air embolism and renal failure did not occur.

TABLE II: AVERAGE DURATION OF SYMPTOMS

Lesion	Years
Mitral	9
Tetralogy	6
Pulmonary valve	4
Septal defects	12

TABLE III: AVERAGE HOSPITAL STAY IN OPEN HEART SURGERY

Lesion	Duration in Days
Mitral	18
Tetralogy	15
Pulmonary valve	17
Septal defects	12

Results

What was achieved? Thirty two open heart operations were performed. Thirteen children are alive, well and leading normal lives. Five young adults were restored to normal activity. Ten adults clearly improved their functional capacity. Two children and 2 adults died for a mortality of 12.5 percent.

Causes of Death

It is very difficult to determine the true cause of death for each individual as it may be one or a combination of several factors (Table IV).

A patient died from cardiac tamponade after total correction of her Tetralogy. The dreaded complication of bleeding, which occasionally accompanies Tetralogy, began immediately after cardiopulmonary bypass was stopped and did not cease until shortly before demise. The patient developed cardiac tamponade notwithstanding the fact that the pericardium was left open. Cardiac tamponade was recognized in the recovery room and the chest was opened. She was resuscitated but she deteriorated over the next 2 days, without regaining consciousness.

Another patient had correction of his ventricular septal defect. During surgery he developed a temporary heart block but the ventricular rate off the temporary pacemaker was 70, a sign that he would recover normal conduction. In the recovery room he was still unconscious when he was extubated. Cardiac arrest followed extubation. The endotracheal tube should be kept in place in all unconscious patients.

The next 2 deaths occurred in 2 patients having severe mitral disease. The purple foxglove was used too long in these patients, and they were willing to gamble what little was left of their life for the slight opportunity of improving. One of them would develop acute heart failure from even the slightest effort. The other patient had been on digitalis since age 12, and at 30, heart failure was intractable. Both had severe pulmonary hypertension. One patient died on the operating table, from a combination of hemorrhage and low myocardial reserve. The other spent 36 hours on a respirator and died because of intractable arrhythmias.

Morbidity

The most important post operative complications are shown on Table V. Two patients presented hemothorax and both had had pericardial patches placed. Five developed arrhythmias, mostly auricular fibrillation with a fast ventricular response. Three suffered thrombophlebitis. Single cases of hepatitis, temporary psychosis, temporary gross hematuria of unknown origin and neural deafness were observed. One patient had residual asymptomatic mitral stenosis detected only by a diastolic murmur. One subject

TABLE IV: OPEN HEART SURGERY SAN JUAN CITY HOSPITAL MORTALITY

Lesion	Operation	Cause of Death
Tetralogy of Fallot	Total correction	Hemorrhage with cardiac tamponade
Ventricular septal defect	Closure of ventricular defect	Complete a-v block cardiac arrest and possible cerebral damage.
Mitral stenosis and insufficiency	Mitral valve replacement	Hemorrhage
Mitral stenosis and insufficiency	Mitral commisurotomy and annuloplasty	Cardiac arrhythmia with sudden cardiac arrest

TABLE V: COMPLICATIONS IN OPEN HEART SURGERY

Cardiac arrhythmias	5
Thrombophlebitis	3
Hemothorax	2
Hepatitis	1
Temporary psychosis	1
Temporary gross hematuria	1
Neural deafness	1

has asymptomatic aortic insufficiency after closure of his ventricular septal defect presumably due to a prolapsed aortic leaflet. Two patients have clinical evidence of pulmonary insufficiency after correction of their atretic annulus but are asymptomatic. Fortunately we have not seen embolism or prosthetic infection. Today all survivors are well.

Discussion

Callahan and colleagues reported 60 deaths in 250 patients who had been subjected to open heart surgery for a 24 percent mortality (3). Cooley and his associated had a 14 percent mortality in their last 100 consecutive open heart operations utilizing hemodilution (4). The mortality for open heart surgery at the Karolinska Hospital, Stockholm, Sweden was 23.4 percent in 507 cases (5). The last published statistics for the heart service at the University of Michigan shows that 78 patients died out of a group of 600 for a mortality of 13 percent (6). We consider that our mortality rate of 12.5 percent compares well with those reported in the medical literature. In our institution it can be stated that surgical mortality is mostly related to the following factors: complexity of lesion, age, myocardial reserve and pulmonary hypertension.

It is well established that surgery in the late stages of myocardial reserve has only palliative value. Long years of procrastination will interfere with surgical results. It is as bad for physicians to wait until a patient is on the late stages of his cardiac reserve as it will be for a surgeon to operate on a patient just on the basis of a heart murmur. A plea is made for early recognition and adequate management of these surgically correctable cardiac lesions.

Summary

Modern facilities for cardiac diagnosis and surgery with cardiopulmonary bypass have been functioning at the San Juan City Hospital. During the first year 32 operations were performed. Four deaths occurred for a 12.5 percent mortality. The nature of the cardiac lesions, mortality and complications are discussed. Mortality and morbidity rates at the San Juan City Hospital compare favorably with those reported in the medical literature from the major cardiac surgical centers in the world.

Resumen

Facilidades modernas para diagnóstico y cirugía

de corazón con circulación extracorporea han sido establecidas en el Hospital Municipal de San Juan. Treinta y dos operaciones fueron practicadas durante el primer año con 4 muertes para una mortalidad de 12.5 porciento. La naturaleza de los casos, mortalidad y complicaciones son discutidas. Se descubrió que la mortalidad compara favorablemente con la reportada en la literatura médica desde los grandes centros de cirugía cardíaca en el mundo.

Acknowledgment

The authors wish to express their gratitude to the members of the Department of Anesthesia, Medicine, the Red Cross Blood Bank, J. C. Medina, R. N. and to the many other persons that contributed to make this work possible.

References

1. *Lewis, F. J., and Taufic, M.:* Closure of atrial septal defects with aid of hypothermia: Experimental accomplishment and report of one successful case, Surgery 33: 52-59 (Jan) 1953.
2. *Gibbon, J. H., Jr.:* Application of a mechanical heart and lung apparatus to cardiac surgery, Minn. Med. 37: 171-177 (March) 1954.
3. *Callaghan, J. C., Despres, J. P., and Benvenuto, R.:* A study of the causes of 60 deaths following total cardiopulmonary bypass, J. Thoracic and Cardiovascular Surg. 42: 489, 1961.
4. *Cooley, D. A., Beall, A. C., and Grordin, P.:* Open-heart operations with disposable oxygenators, 5 percent Dextrose prime and Normothermia, Surgery 52: 713, 1962.
5. *Silva Iribarren and Ekestrom S.:* The causes of death after open heart surgery, J. Thoracic and Cardiovas. Surg. 47: 725, 1964.
6. *Herbert Sloan, Joe D. Morris, James Mackenzie and Aaron Stern:* Open heart surgery, results in 600 cases, Thorax 17: 128, 1962.

FREQUENCY OF RUBELLA ANTIBODY IN PUERTO RICAN ADULTS

D. Méndez Cashion, MD
John L. Sever, MD
Rubén Nazario, MD
Mary R. Gilkeson, BS

Rubella vaccine will soon become available for use in selected groups of the general population. Prophylaxis of rubella is of particular importance in the prevention of fetal damage, including subacute systemic illness, defects of eyes, hearing and heart, and central nervous system disease resulting in mental retardation.

A statement on live rubella virus vaccine by the Committee on Infectious Diseases of the American Academy of Pediatrics was reprinted in the May issue (p 166-67) of the *Boletín*. This statement summarizes the essential clinical information on this disease.

It is an appropriate time for us to publish data which we have obtained at various times on the frequency of rubella antibody in samples of our population.

Material and Methods

Three different sets of serum specimens were tested for the presence of rubella antibody.

The first population sample was studied in the Spring of 1965, during an outbreak of acute febrile illness with rash, among the medical students of the University of Puerto Rico School of Medicine. The etiology of the outbreak was confirmed in the laboratory by the isolation of rubella virus from the throats of several of those ill, and by seroconversion in some of the susceptibles (1).

The study population consisted of 185 young adults, of whom 137 (74 percent) were males and 48 (26 percent) were females, ranging in age from 20 to 29 years. Seventy one percent had resided outside of Puerto Rico at some time.

Serum specimens were obtained on or about March 3, 1965 and again two months later. At the time of each bleeding, each student was asked to fill out a questionnaire on pertinent clinical and epidemiologic data.

The second sample consisted of 114 female clinic patients in the childbearing age. Single serum specimens were obtained in January, 1969, from the mothers of babies attending the well-baby clinics of the Maternal and Infant Care Program of the Northeast Health Region of the Department of Health, at the University Hospital.

The third sample consisted of single serum specimens from 16 young adult female medical students of the University of Puerto Rico School of Medicine, and was also obtained in January, 1969.

Blood specimens were refrigerated promptly, the sera separated within 24 hours and kept frozen until shipment to the laboratories of the National Institutes of Health, where they were tested for rubella antibody. Initially the sera were tested for complement-fixing and neutralizing antibody (AGMR), but when the hemagglutination inhibition (HI) test became available (2), this test was also performed on aliquots of the original specimens which were in frozen storage. Only the results of the hemagglutination inhibition will be reported here. The technique used has been described elsewhere (3).

Results

Table I shows the frequency of HI antibody to rubella at the time of the first bleeding in the medical student population studied in 1965. It will be noted that 45.3 percent of males and 68.7 percent of females (51.3 percent overall) had no detectable antibody and could therefore be considered at risk.

Nine subjects had reported in the first questionnaire the occurrence within two months prior to the first bleeding, of an illness which could have been typical rubella, while ten subjects reported illnesses which were not suggestive of rubella. Between the first and second bleedings, ten persons reported illnesses which were not suggestive of rubella while three persons reported illnesses which could have been typical rubella; however, there was a seroconversion in only one

From the Department of Pediatrics and the Department of Preventive Medicine and Public Health of the University of Puerto Rico School of Medicine, San Juan, Puerto Rico, and from the Section on Infectious Diseases, Perinatal Research Branch, National Institute of Neurological Diseases and Stroke, National Institutes of Health, U. S. Public Health Service, Bethesda, Maryland.

This study was aided by grant B2464 of the National Institute of Neurological Diseases and Blindness, U. S. Public Health Service.

of these. There was a total of three seroconversion in the two months period under consideration; only one of these subjects had typical rubella while the other two were apparently entirely asymptomatic. During the same period, one subject showed a fourfold fall; she had reported an illness diagnosed as German measles one week prior to the first bleeding.

Results on the second study population (mothers of babies attending the well-baby clinics of the Maternal and Infant Care Program) are shown in Table II. Fifty subjects (43 percent) had antibody titers below 4 and could be considered at risk.

Results on the women medical students tested in January, 1969 showed 7 out of 16 (43 percent) to be susceptible. Most of those with antibody had a history of German measles within the last year.

TABLE I: HEMAGGLUTINATION - INHIBITION ANTIBODY TO RUBELLA AMONG MEDICAL STUDENTS - SPRING 1965

Titer Level	Male		Female		Total	
	No.	*Percent*	*No.*	*Percent*	*No.*	*Percent*
0 - <8	62	45.3	33	68.7	95	51.3
8 - 128	44	32.1	7	14.6		
256 - 512	28	20.4	7	14.6		
>512	3	2.2	1	2.1		
Total	137		48		185	

TABLE II: HEMAGGLUTINATION - INHIBITION ANTIBODY TO RUBELLA AMONG FEMALE CLINIC PATIENTS IN THE CHILD-BEARING AGE. UNIVERSITY HOSPITAL - JANUARY 1969

Titer	Number	Percent
0 - <4	50	43
8	4	4
16	16	14
32	14	12
64	13	11
128	10	9
256	5	4
512	2	2
Total	114	100

Comment

Our studies show a relatively low degree of immunity to German measles in the population samples tested. It is of interest that although we have been aware of outbreaks of rubella in this Island since 1964, there does not appear to have been an explosive generalized epidemic confering immunity (as well as a high incidence of fetal abnormality) in a large portion of the population, but rather a continued smouldering endemic type of infection. There is very little difference between the 51.3 percent rate of susceptible in 1965 and the present figure of 43 percent. The population at risk is the same (43 percent) among the women medical students as among the women attending the free medical care clinics, in spite of the definite epidemiologic differences in the two groups.

The American Academy of Pediatrics statement (4) reprinted in the May issue points out that there is serological evidence of immunity in 80 to 90 percent of individuals in the United States. Recent studies at the laboratories of the Section of Infectious Diseases of the Perinatal Research Branch of the National Institute of Neurological Diseases and Stroke have shown that 31 percent of a sample of pregnant women in Los Angeles were at risk, while samples from Baltimore and the University of Tennessee showed that 7 percent were at risk. The population samples studied by us show a higher risk than any of those reported in the continental United States.

This information is of practical value in view of the impending availability of vaccine, and suggests that, within the recommendations of the Public Health Service Advisory Committee and the American Academy of Pediatrics, a strong immunization program against German measles is indicated here.

We are aware that a larger study is underway (5), which may confirm our results.

Resumen

Pronto estará a la disposición la vacuna contra la "rubela"*, para uso en grupos selectos de la pobla-

* *-La designación "rubela" se aplica aquí a una enfermedad aguda exantematosa que se ha asociado con anomalías congénitas en el feto; conocida también por algunos como "sarampión Alemán". Se nos ha informado por algunos latinoamericanos que el vocablo aplicable es "rubeola", y que se refiere "rubela" en español al sarampión clásico. Debido a desarrollos recientes en el diagnóstico específico y en los conocimientos de la enfermedad que en la literatura Americana y Europea se denota como "rubella", es imperativo que se aclare oficialmente la terminología referente a estas enfermedades.*

ción general. La profilaxis de esta enfermedad es de particular importancia en la prevención del daño fetal, lo cual incluye enfermedad sistémica subaguda, defectos de los ojos, la audición y el corazón, y enfermedad del sistema nervioso central conducente al retraso mental.

En el número de mayo del *Boletín* se reproduce la declaración sobre dicha vacuna del Comité sobre Enfermedades Infecciosas de la Academia Americana de Pediatría, la cual sintetiza la información clínica esencial sobre esta enfermedad. Es apropiado el momento para nosotros publicar los resultados de estudios relativos a la frecuencia de anticuerpos en algunas muestras de nuestra población.

La prueba de inhibición de la aglutinación, para el diagnóstico de la rubela, se llevó a cabo en tres grupos de espécimenes. El primer grupo consistía de sueros de 185 estudiantes de medicina (138 varones y 48 hembras) congelados en la primavera de 1965 durante un brote de rubela, y demostró un 51.3 porciento de susceptibles. El segundo grupo estaba constituído por mujeres jóvenes adultas que asistían a las clínicas del Programa Materno-Infantil de la Región Noreste de Salud, en el Hospital Universitario; las muestras se obtuvieron en enero de 1969 y demostraron que el 43 porciento era susceptible. Se estudiaron, además, 16 mujeres jóvenes estudiantes de medicina en enero de 1969, y aquí también el 43 porciento resultó susceptible.

Los datos demuestran un grado relativamente bajo de inmunidad en las muestras que se probaron y sugieren la necesidad aquí de un programa activo de inmunización, dentro de las recomendaciones del Servicio de Salud Pública Federal y la Academia Americana de Pediatría.

Entendemos que se está llevando a cabo una investigación mucho más extensa, la cual podría confirmar nuestros resultados.

Acknowledgment

We wish to thank the University of Puerto Rico medical students, the University Hospital residents, and very specially Drs. Diego Collazo, Salvador Marsé and Stephen J. Newman, as well as the personnel of the Maternal and Infant Care Program, who participated in the collection of specimens and data.

References

1. *Méndez-Cashion, D., Nazario, R. and Sever, J. L.:* Acute hemorrhagic rubella: Report of a virologically confirmed case in adult, Bol. Asoc. Méd. P. Rico 59: 34, 1967.
2. *Stewart, G. I., Parkman, P. D., Hopps, H. E., Douglas, R. D., Hamilton, J. P. and Meyer, H. M.:* Rubella virus hemagglutination - Inhibition test, New Eng. J. Med. 276: 554, 1967.
3. *Sever, J. L., Fuccillo, D. A., Gitnick, G. L., Huebner, R. L., Gilkeson, M. R., Ley, A. C., Tzan, N. and Traub, R. G.:* Rubella antibody determinations, Pediatrics 40: 789, 1967.
4. *Committee* statement of the committee on control of infectious diseases of the American Academy of Pediatrics, Newsletter Supplement, April 15, 1969.
5. *Oliver-González, José:* Personal communication.

DIAGNOSIS OF INBORN ERRORS OF METABOLISM

Lewis A. Barness, MD

Inborn errors of metabolism have been studied for at least 70 years. Doctors have been making diagnoses of inborn errors for at least this length of time. It is only with the specific name "inborn errors" that trepidation has been struck in the heart of the diagnostician.

If one diagnoses hypothyroidism, hemophilia or hemolytic anemia, these are accepted as standard diagnoses. Even "galactosemia" or "phenylketonuria" no longer frightens one. These are 5 of at least 200 such metabolic diseases. Many of the remainder are almost as easy to diagnose as these.

Diagnoses of inborn errors are important for many reasons. Several reasons are listed in Table I. Early treatment can sometimes avoid the manifestations and ill effects of the disease. At worst, the probability of the disease occurring in subsequent children and the prognosis of the patient can be told the parents. Hopefully, for the future, treatment during pregnancy may obviate or ameliorate the disease in the unborn child.

When suitable screening tests are developed which are accurate, simple, painless, and inexpensive it may be desirable to screen all people or at least all newborns for inborn errors. We are still a long way from such a state for any disease. There are, however, a few situations which require that one look for inborn errors.

In the newborn, these states include (Table II) families with histories of children or adults with inborn errors, infants with unexplained seizures or of unusual appearance, and infants with sexual ambiguity, persistent jaundice, or edema.

In the older child, to this list should be added (Table III) those children with failure to thrive, those who have mental retardation or short stature, and those with those specific physical abnormalities which are known to be associated with recognized inborn errors

TABLE I: DETERMINATION OF INBORN ERRORS

1. Avoid bad effects
2. Genetic advice
3. Prognosis
4. Treatment during pregnancy

TABLE II: SUSPECT INBORN ERRORS, NEWBORN

1. Family history
2. Seizures
3. Unusual appearance
4. Sexual ambiguity
5. Persistent jaundice
6. Edema

TABLE III: SUSPECT INBORN ERRORS, OLDER CHILDREN

1. Failure to thrive
2. Mental retardation
3. Specific physical abnormality
4. Short stature

From the Department of Pediatrics, Hospital of the University of Pennsylvania and University of Pennsylvania, School of Medicine.

The author's investigative work in the report has been supported in part by USPHS grant AM-02231.

of metabolism. A list of some of the more common of these is included in Table IV.

How does one go about diagnosing these disorders in the office? While specific diagnosis is usually impossible in the office, those screening tests which indicate a high degree of probability of inborn errors are usually possible in the office, and should be done. Most productive of positive diagnosis is a complete history including family history, physical, and suspicion that such a diagnosis may exist. Next most productive is a urinalysis (Table V).

Routine test for protein reveals many inborn errors associated with chronic renal disease. Crystals are present in such diseases as cystinuria, which is associated with stones and pyelonephritis; and orotic aciduria, a rare cause of anemia. In children, urine should be tested for reducing substances with such materials as "Clinitest" tablets. The paper stick for glucose is of relatively little importance in pediatrics. Clinitest tablets will detect not only diabetes but also those other reducing sugars such as galactose. When a reducing sugar is detected, it can then be tested for glucose with a glucose-oxidase paper. If it is not glucose it should be chemically identified. Certainly, in the infant with prolonged jaundice, the urine should be tested routinely for reducing substance.

Cells in urine require identification. Rarely, hereditary nephritis is the cause of red cells in the urine. Specific gravity is low in the diabetes insipidus syndromes. High pH in the presence of acidosis should make one suspect a renal tubular acidosis.

Certain amino acids are reducing substances and will have been previously identified. Others (Table VI) cause color change with ferric chloride.

A 10 percent solution of ferric chloride in water is stable for many months. If one gets in the habit of using this routinely some of the aminoacidurias will be detected.

Unfortunately, no simple laboratory test yet exists for mucopolysaccharides and urinary organic acids. Perhaps lumbar spine films which are abnormal might make a practitioner suspect mucopolysaccharidosis and thus request the necessary tests. Children with prolonged unexplained acidosis should be tested for organic aciduria.

Stools should be examined in the suspect child (Table VII). Fat is present in many of the celiac syndromes, protein in the protein losing enteropathies, and reducing substance in the mono- and disaccharidase deficiencies.

Fat can usually be observed in the stool. Protein can be tested for as follows:

Approximately one gram of stool is shaken with one ml. of water. A protein stick is dipped into the supernatant and read as for urine.

Reducing substance is detected as follows. The remaining supernatant is poured into another test tube. Five drops are put into a tube. Ten drops of water and one clinitest tablet added, the mixture is read as for urine. The remaining supernatant is

TABLE IV: SPECIAL FINDINGS IN SOME INBORN ERRORS

Disease	Finding
Phenylketonuria	Hypertonic, eczema, seizures, musty odor
Alkaptonuria	Arthritis, dark urine
Tyrosyluria	Acidosis, rickets, glycosuria
Albinism	Fine hair, decreased pigment
Cystinuria	Renal stones, pyelonephritis
Cystinosis	Corneal crystals, acidosis, rickets, glycosuria
Hartnup disease	Eczema, pellagra, ataxia, photosensitivity
Leucine induced hypoglycemia	Hypoglycemia
Maple Syrup Urine disease	Convulsions, urine odor
Prolinemia	Deafness, hematuria, seizures
Glycinuria	Acidosis, anemia, thrombocytopenia
Oxaluria	Renal stones
Arginosuccinic aciduria	Brittle hair
Histidinemia	Delayed speech
Homocystinuria	Dislocated lens
Lysine intolerance	Weakness
Lesch-Nyhan syndrome	Athetoid, self-mutilation
Cretinism	Large tongue, constipation
Glycogen storage disease	Hypoglycemia, cirrhosis
Wilson's disease	Cirrhosis, athetoid, hemolysis, K-F ring
Galactosemia	Cirrhosis, cataract
Isovaleric acidemia	Odor of sweaty feet

TABLE V: FINDINGS IN URINE

1. Protein, crystals, reducing substances
2. Cells, pH, specific gravity
3. $FeCl_3$ test
4. Mucopolysaccharides
5. Organic acids

TABLE VI: POSITIVE URINARY FERRIC CHLORIDE

Phenylketonuria
Tyrosinemia
Histidenemia
Oasthouse disease
Maple syrup urine disease
Alkaptonuria
Pyridoxine disorders

TABLE VII: STOOL EXAMINATIONS

1. Appearance
2. Fat
3. Bacteria
4. Ova, parasites
5. Protein
6. Reducing substances
7. Blood

TABLE VIII: BLOOD EXAMINATIONS

1. Hgb, smear
2. FBS
3. BUN, Na, K. Cl
4. Ca, P, Pase
5. Uric acid
6. PBI
7. Immunoelectrophoresis

TABLE IX: OTHER TESTS FOR INBORN ERRORS

1. Buccal smear
2. Sweat electrolytes
3. X-ray head, extremities
4. Electroencephalogram

acidified with acetic or hydrochloric acid, boiled one minute, cooled, and similarly tested. If the second reducing test is positive and the first negative, this is presumptive indication of a disaccharide in the stool which has required hydrolysis for detection.

The blood studies listed in Table VIII serve to detect many of the hematologic inborn errors. These include the hemoglobinopathies, and hemolytic anemias. Hypoglycemia as well as diabetes are suggested by the blood sugar, various chronic renal diseases by a high BUN. An unusually low BUN might require further workup for liver disease or very rare aminoacidurias. Low phosphatase as well as low PBI are good screening tests for thyroid disease; abnormal calcium and phosphorus may suggest parathyroid or thyroid disease as well as idiopathic hypercalcemia of infancy. Uric acid elevation should suggest hyperuricemia. Study of the globulins may suggest one of the immune diseases.

Other screening tests, somewhat more difficult to obtain are listed in Table IX.

With the tests outlined, most of the presently recognized inborn errors can at least be suspected. Most of these tests can be done in the doctors office or in a basic laboratory. Wider use of these tests should help the doctor detect disease and better treat patients.

FRACTURE DISLOCATION OF THE ANKLE WITH FIXED DISPLACEMENT OF THE FIBULA BEHIND THE TIBIA

E. Blas Ferraiouli, MD, FACS, DABS
Rafael Fernández, MD, DABO

Fracture dislocation of the ankle not involving the fibula is easily reduced; however, when the fibula is involved, closed reduction is not satisfactory and normal anatomical talo-tibial relation is not obtained (1).

Because of repeated redislocation on the case here reported with the patient under spinal anesthesia, a mechanism as to why this occur urged our mind for its logical explanation.

The case is that of a young male who, while playing baseball, tried to steal the second base, hit the base, twisted his foot and fell on his chest. Eight hours after the injury he was seen at the V. A. Hospital. Spinal anesthesia was given and 3 closed reductions were attempted without a satisfactory reduction.

Searching the literature, we came across an article by Dr. David Bosworth, read at the Annual Meeting of the American Orthopedic Association, Hot Springs, Virginia, June 28, 1946 (2, 3).

Five cases included in Dr. Bosworth's presentation were all submitted to open reduction and fixation with screws. (Dr. Bosworth's explanation for this situation is as follows: "as the foot twists under the talus with the leg continuing to push forward and to rotate outward, the lateral collateral ligaments draw the intact fibula behind the tibia. Continuation of the force rotating the talus backward and out of its position beneath the tibia causes further force on the lateral collateral ligaments; finally, the fibula is broken off against the posterior tibial border, as one would break a bone in doing an osteoclasis. Following the fracture and the cessation of the forces, there is nothing left attached to the upper fragment of the fibula by which it can be brought back into place. It is impossible, however, to force the upper fibular fragment back around the posterolateral ridge on the lower tibia because of the tight pull of the still intact interosseous membrane. Only by insertion of a pry between the two bones will enough leverage be produced to replace the upper fibula on the lateral surface of the tibia.

Roentnogram reported in this case (A) shows the fibula is truly caught behind the lateral ridge of the distal portion of the tibia. Figure (B) - apparent reduction but the upper fragment is still caught behind the posterior lateral tibial ridge. Figure (C) - open reduction. Talo-Tibial articulation normal and fibula replaced.

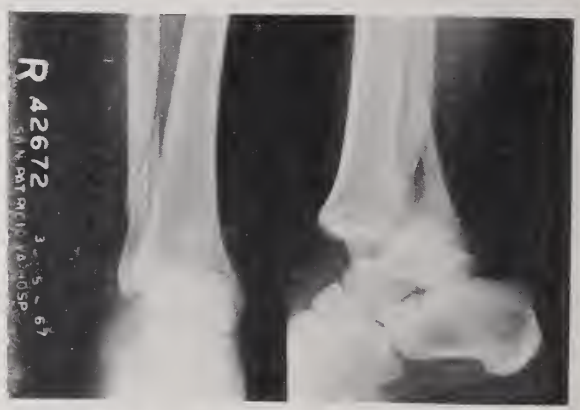


Fig. A: *Fracture dislocation of the ankle with displacement of the fibula.*



Fig. B: *Closed reduction unsuccessful. The fibula is caught behind the posterior-lateral ridge of the tibia.*



Fig. C: *Open reduction. The talotibial articulation is normal.*

Open reduction was undertaken. It was found that the lower end of the upper fibular fragment was deeply buried behind the tibia, and was fixed firmly in this position and strongly resisted replacement. Strong leverage finally shifted the fibular fragment which then suddenly snapped back into position. It was secured to the lower fragment with a rush pin and one screw.

Summary

A case of fracture dislocation of the ankle with fixed displacement of the fibula behind the tibia is presented. Etiological mechanism discussed.

Several attempted closed reductions were unsuccessful. Open reduction was performed to secure anatomical replacement.

References

1. Gray's Anatomy - 27th Ed., Lea & Febiger, Pa., 1959.
2. Fractures and Joint Injuries - 4th Edition, Vol. II - Watson & Jones - Williams & Wilkins.
3. *Bosworth, David M.:* Fracture dislocation of the ankle with fixed displacement of the fibula behind the tibia. J. Bone Joint Surg., 29: 130, 1947.

A REFERENCE FILE: THE EASY WAY

Elí A. Ramírez, MD

Most of us are subscribed to a number of medical journals which come to our desk relentlessly every month, sometimes every week, and stay there until a few minutes are available to read them. The demands on our time are so great, and the load of information is so large, that even with the best intentions most of this information piles up on the desk, remains unread, and eventually ends up in the waste basket. Some of us try to solve the problem by having our journals bound, but within a few years we find ourselves crowded out of our offices by a veritable mountain of books.

The real issue is not so much reading every article but saving those that interest us in order to have them available when they are needed. Many systems have been elaborated for this purpose (1, 2). Some of them are quite efficient and permit a ready cross reference to the material but have the disadvantage of requiring additional secretarial help, or a specialized filing system, or else they take too much time for preparation and retrieval. In other words, they are not too practical. The end result is that the average physician who starts a reference file rapidly gets tired of the effort it takes to keep it up to date, and after a short while goes back to filing his journals in the waste basket.

After wrestling with this problem for a number of years, I have devised a system that admittedly is not as efficient as some of those that have appeared in the literature, but has three important advantages: it is simple, requires no special equipment, and takes very little time. Since the issue of post-graduate medical education is so crucial at the present time, I thought that perhaps it would be wise to pass this system on to other colleagues who might use it, for their own purposes.

The system in brief is as follows:

1. Select a textbook of the field of your interest. It makes no difference what kind of a textbook it is as long as it has a good index, one that in your opinion covers the field well and is up to date. It will be more convenient for you if the index has a reasonable amount of space following each subject item.

2. When you page through your journals select and clip out the articles you want.

3. Staple the pages of each article together and number the articles in sequential order. I use the sequence A1 to A99, B1 to B99, etc., which will enable me to have eventually nearly 2800 articles on file.

4. When you have a group of articles ready for filing go to your index and write the number of the article next to each subject item to which the article refers. For example, if article A79 is on "Retinal lesions on patients with rheumatoid arthritis treated with chloroquine", you would place the number A79 next to subject items "retina", "Chloroquine", and "rheumatoid arthritis". You may place as many cross indexed entries as you like.

5. File the articles in numerical order, one right after the other. For convenience in filing, you may use one cardboard folder for each 50 articles. In the letter sequence that I mentioned above, I use two folders for each letter.

6. Subsequently, in retrieving information you simply consult your index and go into your file with the article numbers that you want. This is very easy since the articles are filed in numerical sequence.

Besides being simple, this system is adaptable. It can be used by a physician in any specialty. The only difference would be in the selection of an index from a textbook of the particular specialty. Another important advantage is that when the file is filled, the older papers with the lower numbers can be simply discarded. If after reviewing the papers you are going to discard you find a few that you still want to save you can renumber them or put them in a separate "Classic paper file". However, the purpose of this system is to have current literature readily available. For older material one can always use text books or the usual library resources.

The matter of selecting your text book index is important. Some books have a very small amount of blank space next to the subject entries in the index

and therefore are less suitable for this purpose. The best index that I know of is in the reference system of medical terms listed in "Current Medical Terminology" (3). This excellent book has adequate space for marginal notations and is relatively inexpensive. If you are interested in a very complete index this is your best bet. However, for the usual "keeping up to date" purposes, a text book index chosen to fit your particular interests can be quite satisfactory.

This filing system is certainly not the most sophisticated nor does it allow the most exhaustive cross referencing. On the other hand, it is quick, costs little or nothing, and requires minimal effort. It seems to offer a practical solution to the perennial problem of finding the latest medical information.

References

1. *Jeghers, H.:* Medical care, education and research. Philosophy and technics of self-education of the medical student and physician. New Eng. J. Med. 271: 1297, 1964.
2. *Bartlett, L. C.:* Narration: Filed AND found. A personal information storage and retrieval system. JAMA 199: 244, 1967.
3. Current Medical Terminology, 3rd. Ed., 1966, American Medical Association, Circulation and Records Department, Chicago, Ill.

ACTUALIDADES MEDICAS

A high potency, highly purified concentrate of antihemophilic factor (AHF), for the prevention or control of bleeding episodes in victims of hemophilia, has been developed by the American Red Cross under a research contract awarded by the National Blood Resource Program of the National Heart Institute.

The new concentrate contains some 40-100 times as much AHF as does an equal volume of whole blood or plasma. It promises to be a major advance in the medical management of hemophilia A, by far the most common of the hereditary bleeding diseases that, in the aggregate, afflict an estimated 100,000 Americans.

The concentrate is prepared from blood plasma by a polyethylene glycol precipitation technique developed by Dr. Alan Johnson, of the American Red Cross Laboratory at New York University Medical Center, New York City. The technique is relatively simple and is suitable for extracting the AHF from large batches of plasma. The AHF-free plasma can subsequently be processed to yield albumin, gamma globulin, and other plasma proteins with important uses in research and clinical medicine.

The AHF concentrate is chemically stable and can be stored at refrigerator temperature for prolonged periods without loss of potency. Its high purity minimizes the risk of side reactions when it is administered to patients.

The concentrate will be manufactured for the Red Cross under contract as soon as remaining legal and logistical problems have been resolved. A license for this purpose was recently issued by the NIH Division of Biologics Standards.

It will be some time before the concentrate becomes available in quantity. However, the new precipitation technique will make quantity production of AHF feasible, enabling solution of the most difficult problems of hemophiliacs at reasonable cost.

Hemophilia A, or classical hemophilia, is a hereditary hemorrhagic disorder resulting from a lack or deficiency of antihemophilic factor (AHF, clotting factor VIII). A complex protein normally manufactured by the liver, spleen, and possibly other tissues, AHF is one of 11 recognized clotting factors that are essential participants in or another of the intricate series of reactions leading to the formation of a blood clot. Hereditary deficiency states exist for most of these clotting factors; and, with few exceptions, result in hemorrhagic diseases. Of these, hemophilia A is by far the most common, probably accounting for upwards of 80 percent of all such hereditary clotting factor deficiencies.

The defective gene responsible for the AHF deficiency is carried by females, who themselves only very rarely have overt hemophilic coagulation problems. However, there is an approximately even chance that they will transmit the genetic defect—and the hemorrhagic disease—to their sons. If a hemophilic male begets children, his sons will be normal, but his daughters will be carriers; and their sons will have an approximately even chance of being hemophiliacs like their grandfather. About 50 percent of cases have no family history and probably are victims of recent gene mutations.

The coagulation defect of hemophilia A can be corrected only by making good the AHF deficit, and the correction is only temporary. Infused AHF disappears rapidly from the blood: its normal half life is only about 10-12 hours.

Until only a few years ago, AHF could be supplied to the hemophilic patient only by transfusions of freshly drawn whole blood or fresh or freshly frozen plasma. Except in instances where shed blood needed to be replaced or plasma volume expanded, this necessarily involved transfusing a lot of unwanted substances along with the AHF and sometimes created knotty problems. For example, to raise the factor VIII concentration to levels permitting essential surgery in a hemophilic patient and to sustain these levels until the threat of postoperative hemorrhage had subsided might require so much plasma that the patient's blood volume would be dangerously increased, with the attendant threats of excessive fluid accumulation in the brain or congestive heart failure.

Within the past 5 years, a number of techniques have been devised for preparing concentrates of AHF

from plasma. Earlier concentrates were a considerable improvement over transfusion therapy, but were subject to wide variations in potency and purity. The precipitation techniques were unsuitable for processing large batches of plasma, so that the available supply of AHF concentrates was always very limited.

But through the efforts of many scientists, steady progress has been made in improving the potency and purity of AHF concentrates and also in increasing the stability of the final product. The polyethylene glycol precipitation technique developed by Dr. Johnson combines these advantages with ready applicability to plasma processing that will enable ARC to process for AHF on a scale not previously possible.

Reproduced from HEW News - Press Release 10/15/69.

Instrucciones para los Autores

El Boletín acepta para su publicación artículos relativos a medicina y cirugía y las ciencias afines. Igualmente acepta artículos especiales y correspondencia que pudiera ser de interés general para la profesión médica.

El artículo, si se aceptara, será con la condición de que se publicará únicamente en esta revista.

Para facilitar la labor de revisión de la Junta Editora y la del impresor, se requiere de los autores que sigan las siguientes instrucciones:

Manuscrito: El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos a maquinilla a doble espacio y por un solo lado de cada página, en duplicado y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre del autor (es) y su grado (ej: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

El manuscrito debe comenzar con una breve introducción en la cual se especifique el propósito del mismo. Las secciones principales (como por ejemplo: materiales y métodos) deben identificarse como un encabezamiento al centro y en letras mayúsculas.

Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

Artículos referentes a estudios de casos aislados deben organizarse en la siguiente forma: Introducción, Materiales y Métodos si es aplicable, Observaciones del Caso, Discusión, Resumen (en español e inglés), Reconocimientos y Referencias.

Nomenclatura: Deben usarse los nombres genéricos de los medicamentos. Podrán usarse también los nombres comerciales, entre paréntesis, si así se desea. Se usará con preferencia el sistema métrico de pesos y medidas.

Tablas: Las tablas deben aparecer en hojas separadas. Estas deben incluir el título y el número de la tabla (romano). Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales y horizontales en la tabla.

Figuras: Las fotografías y microfotografías se someterán como copias en papel de lustre, sin montar. En el reverso de la figura debe aparecer el número de la figura (arábigo) y el autor y debe indicarse la parte superior.

Referencias: Las referencias deben ser numeradas sucesivamente de acuerdo con su aparición en el texto. Los números deben aparecer en paréntesis al nivel de la línea u oración. Al final de cada artículo las referencias deben aparecer en el orden numérico en que se citan en el texto. Estas deben seguir el estilo o patrón del "Index Medicus", el cual se describe a continuación:

Para artículos de Revista

Apellido (s), e iniciales del nombre del autor (es), título del artículo, nombre de la revista, volumen, primera página y año.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

Para citación de Libros

Apellido (s), e iniciales del autor (es), título, edición, casa editora, ciudad, año y página.

Wintrobe, M. M.: Clinical Hematology, 3rd Ed. Lea and Febiger, Philadelphia, 1952 p. 67.

Deben usarse solamente las abreviaturas indicadas en el "Cumulative Index Medicus" que publica la Asociación Médica Americana.

Como guía de referencia para preparar su artículo puede usar la publicación Advice to Authors que publica la Scientific Publications Division, American Medical Association, 535 N Dearborn Street, Chicago, Illinois, 60610.

Instructions to Authors

The Boletín will accept for publication contributions relating to the various areas of medicine, surgery and allied medical sciences. Special articles and correspondence on subjects of general interest to physicians will also be accepted. All material is accepted with the understanding that it is to be published solely in this journal.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

Manuscripts: The entire manuscript, including legends and references should be typewritten double spaced in duplicate with ample margins. A separate title page should include the following: title, authors and their degrees (e. g. MD, FACP), city where the work was done, hospital or academic institutions,

acknowledgment of financial sponsors, and if the paper has been presented at a meeting the place and date should be given.

The manuscript should start with a brief introductory paragraph or paragraphs which should state its purpose. The main sections (for example, Materials and Methods) should be identified by center headings in capital letters.

Articles reporting the results of clinical studies or laboratory investigation should be organized under the following headings: Introduction, Material and Methods, Results if indicated, Discussion, Summary in English and Spanish, Acknowledgments if any, and References.

Nomenclature: Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. Metric units of measurements should be used preferentially.

Tables: These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical and horizontal lines should be omitted.

Figures: Photographs and photomicrographs should be submitted as glossy prints, unmounted. They should be labeled in the back with the name of the authors and figure number (Arabic) and the top should be indicated. Legends to the figures should be typed on a separate sheet.

References: These should be numbered serially as they appear in the text. The number should be enclosed in parenthesis on the line of writing and not as superscript numbers. At the end of the article references should be listed in the numerical order in which they are first cited in the text. This list should conform to the Style of the Index Medicus and should be punctuated as in the following examples.

For journal articles: Surname and initials of author (s), title of articles, name of journal, volume, first page and year.

Koppisch, E.: Pathology of arteriosclerosis. Bol. Asoc. Méd. P. Rico 46: 505, 1954.

For Books: Surname and initials of author (s), title, edition, publishing house, City, year and page.

Wintrobe, M. M: Clinical Hematology, 3rd. Ed. Lea and Febiger, Philadelphia, 1952, p. 67.

Abbreviations will conform to those used in the Cumulative Index Medicus, published by the American Medical Association.

For aid in preparing your manuscript refer to the publication Advice to Authors available from the Scientific Publications Division, American Medical Association, 535 N Dearborn St., Chicago, Illinois 60610.

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas médicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

Se alquila local segundo piso, para médicos - Más de 1,000 pies cuadrados - piso terrazo - tres cuartos - dos baños; luz, agua y parking incluídos. A varios minutos del Hospital del Maestro. Centro Médico y Auxilio Mutuo. Para más información, llamar al Dr. Cuevas, teléfonos 767-1004 o 764-2226.

Se alquila local para dispensario médico - Tiene tres oficinas - Teléfono - Ave. Comercial Lomas Verdes. Para más información llamar al teléfono 767-5095.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pilar Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras, Están semiequipadas. Sitio céntrico próximo a las calles principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas, Apartado 20267, Río Piedras, P. R., Teléfono 766-7398.

WANTED

Internist, Board certified or eligible to work in a prosperous, growing area in South Texas. Will share modern medical building with Lab. and X-Ray facilities. Please contact Víctor Malagón, MD, FACP, FACC, 802 So. Main St., McAllen, Texas.

SE VENDE

Se vende Fluroscopio Westinghouse. Precio razonable. Inf: J. Ramírez-Ledesma, MD, Apartado 3013, Mayaguez, Puerto Rico, 00708.

John Blake thought safety belts were a drag.



What's your excuse?

Advertising contributed for the public good.

ADVERTISING COUNCIL

GREEN CROSS FOR SAFETY
NATIONAL SAFETY COUNCIL

A once-popular treatment for back pains was to have the seventh son of a seventh son stand or walk on the patient's back.





The pain of earache was allegedly relieved by holding a hot roasted onion to the ear.

For headache, a sovereign remedy was to wear a snakeskin round one's head.



A realistic approach to pain relief



Empirin'®

Compound with Codeine Phosphate gr. 1/2 No. 3

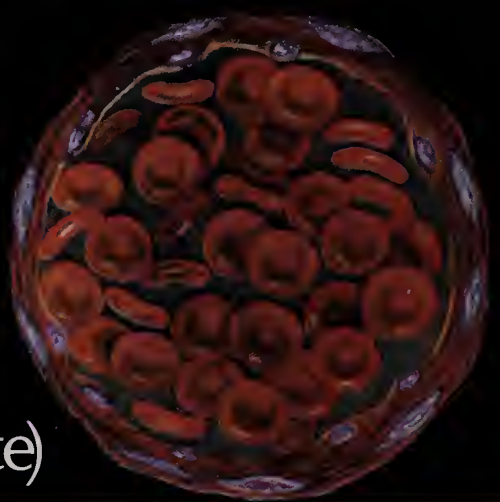
Each tablet contains:
Codeine Phosphate gr. 1/2 (Warning—May be habit forming), Phenacetin gr. 2 1/2, Aspirin gr. 3 1/2, Caffeine gr. 1/2.

keeps the promise of pain relief

'B.W. & Co.' narcotic products are Class "B", and as such are available on oral prescription, where State law permits.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, N.Y.

Roniacol® Timespan®
(nicotinyl alcohol tartrate)



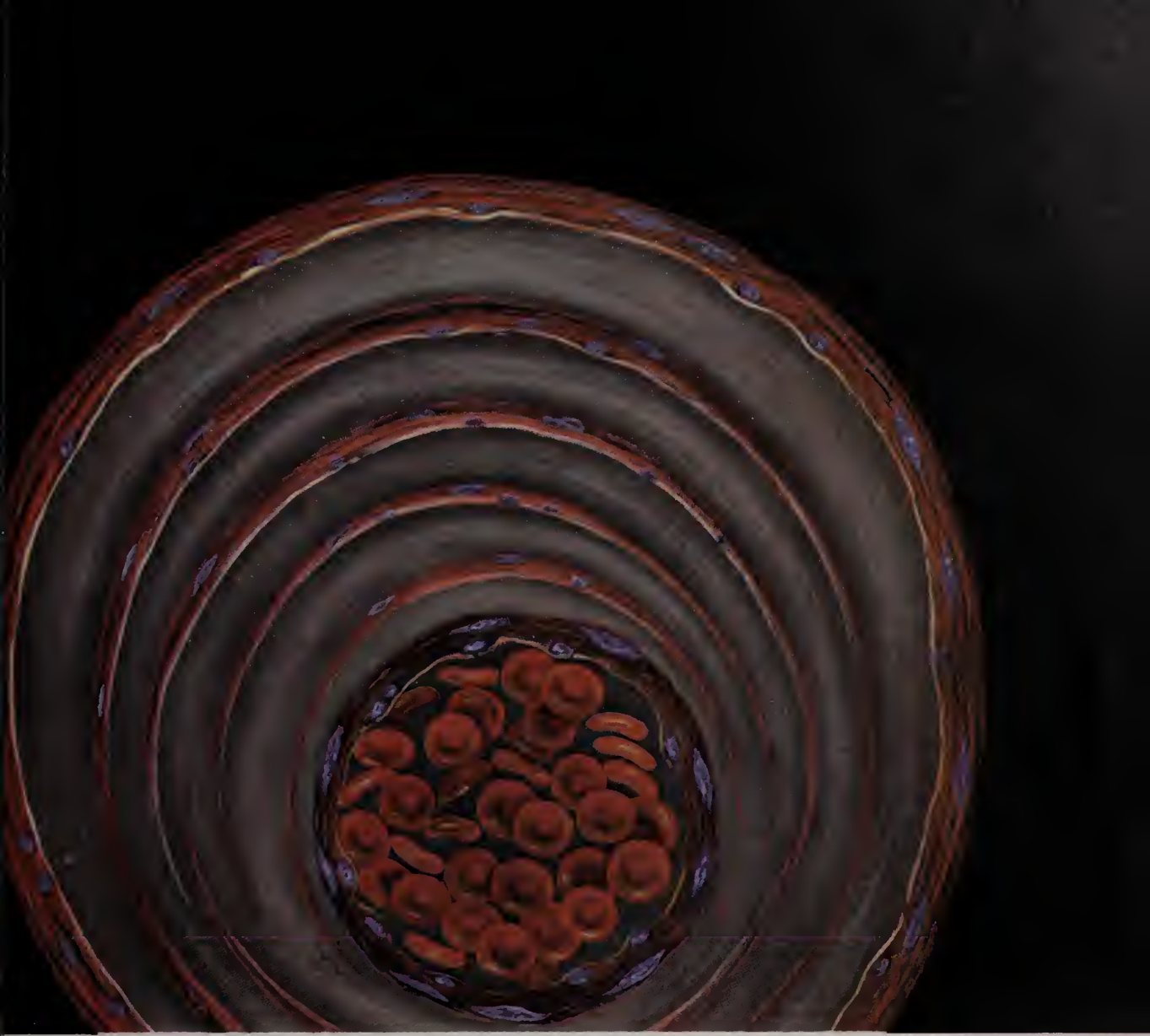
Because peripheral vasodilation is needed now... and must often be continued

Roniacol Timespan (nicotinyl alcohol tartrate) can make a significant contribution to effective treatment of peripheral vascular disorders. It is directed specifically toward improvement of peripheral blood flow, relief of ischemic symptoms, and the long-term management of these conditions.

Specific pharmacologic action—Roniacol (nicotinyl alcohol) acts selectively by relaxing smooth muscle of peripheral blood vessels. Onset of action is smooth and gradual, rarely causing severe flushing.

Relative freedom from side effects—Side effects that may occur occasionally with Roniacol seldom require discontinuation of therapy.

Prolonged, continuous drug release—Prolonged peripheral vasodilation is provided by sustained-release Roniacol Timespan (nicotinyl alcohol tartrate) Tablets. Part of the drug becomes available immediately, the remainder continuously over a period of up to 12 hours, and dilation of constricted peripheral vessels usually maintained. Thus, with a single dose of medication, patients can enjoy the benefits of increased peripheral blood flow in ischemic extremities for up to 12 hours.



mooth peripheral vasodilation from initial losage...extended with imple, well-tolerated, b.i.d. dosage

he prolonged action of Roniacol Timespan icotinyl alcohol tartrate) together with its her benefits offer a therapeutically practical easure in the long-term management of eripheral vascular disease–advantages pecially important for older patients.

efore prescribing, please consult complete oduct information, a summary of which llows:

dications: Conditions associated with eficient circulation; e.g., peripheral vascular sease, vascular spasm, varicose ulcers, ecubital ulcers, chilblains, Meniere's syn-ome and vertigo.

Caution: Roche Laboratories endorses caution in the administration of any therapeutic agent to pregnant patients.

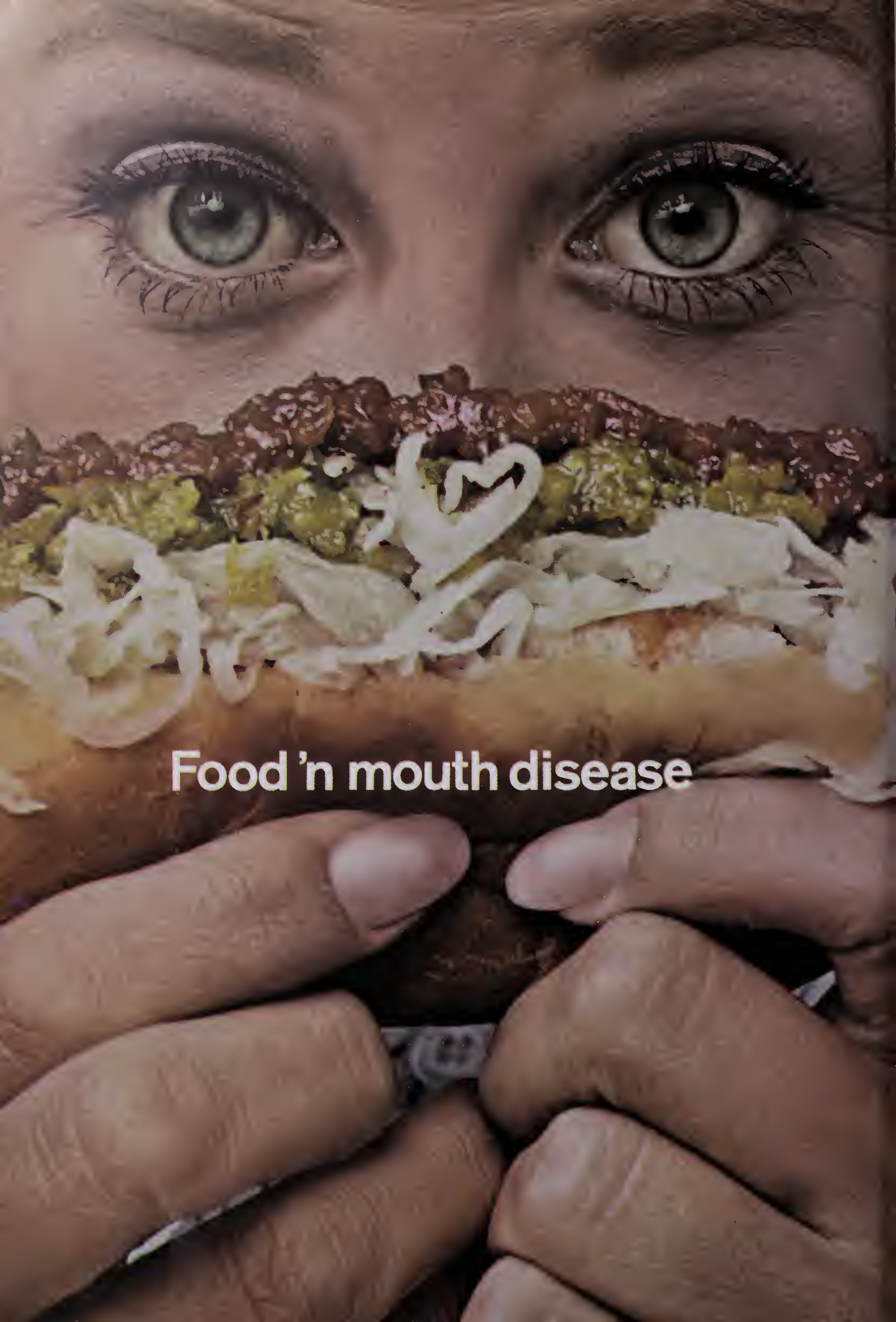
Side Effects: Transient flushing, gastric disturbances, minor skin rashes and allergies may occur in some patients, seldom requiring discontinuation of the drug.

Dosage: 1 or 2 Timespan Tablets—150 mg nicotinyl alcohol in the form of the tartrate salt—bottles of 50 and 500.

ROCHE

Roche
LABORATORIES
Division of Hoffmann - La Roche Inc.
Nutley, New Jersey 07110

Art is a conception of peripheral vasodilation.


Food 'n mouth disease

eludin® phenmetrazine hydrochloride
eludin is indicated only as an anorexigenic agent in the treatment of obesity. It may be used in simple obesity and in obesity complicated by diabetes, moderate hypertension (see Precautions), or pregnancy (see Warning).

ntraindications: Severe coronary artery disease, hyperthyroidism, severe hypertension, nervous instability, and agitated prepsychotic states. Do not use with other CNS stimulants, including MAO inhibitors.

arning: Do not use during the first trimester of pregnancy unless potential benefits outweigh possible risks. There have been clinical reports of congenital malformation, but causal relationship has not been proved. Animal teratogenic studies have been inconclusive.

Precautions: Use with caution in moderate hypertension and cardiac decompensation. Cases involving abuse of or dependence on phenmetrazine hydrochloride have been reported. In general, these cases were characterized by excessive consumption of the drug for its central stimulant effect, and have resulted in a psychotic illness manifested by restlessness, mood or behavior changes, hallucinations or delusions. Do not exceed recommended dosage.

Adverse Reactions: Dryness or unpleasant taste in the mouth, urticaria, overstimulation, insomnia, urinary frequency or nocturia, dizziness, nausea, or headache.

Dosage: One 25 mg. tablet b.i.d. or t.i.d. Or one 75 mg. Endurets tablet a day, taken by midmorning.

Availability: Pink, square, scored tablets of 25 mg. for b.i.d. or t.i.d. administration, in bottles of 100 and 1000.
Pink, round Endurets® prolonged-action tablets of 75 mg. for once-a-day administration, in bottles of 100 and 1000.
(B)R3-46-560-B

Under license from Boehringer Ingelheim G.m.b.H.

For complete details, please see full prescribing information.

Geigy Pharmaceuticals
Division of Geigy Chemical Corporation
Ardsley, New York 10502

For some, obesity can be a serious complication of moderate hypertension, diabetes, or pregnancy.

Preludin may be used to curb appetite in obesity associated with such conditions.

For use during pregnancy, please consult Warning paragraph. The use of Preludin in moderate hypertension should be accompanied by caution. In diabetes, the drug does not increase insulin requirements (requirements may be reduced as weight is lost).

One 75-mg. Endurets tablet taken between breakfast and midmorning will usually provide daylong and early-evening suppression of appetite.

Preludin® phenmetrazine hydrochloride Endurets® prolonged–action tablets

6611

Otro nuevo descubrimiento de Lakeside



cuando la depresión abruma

NORPRAMIN

(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extraoiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.



There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

Member of the National Association of Blue Shield Plans

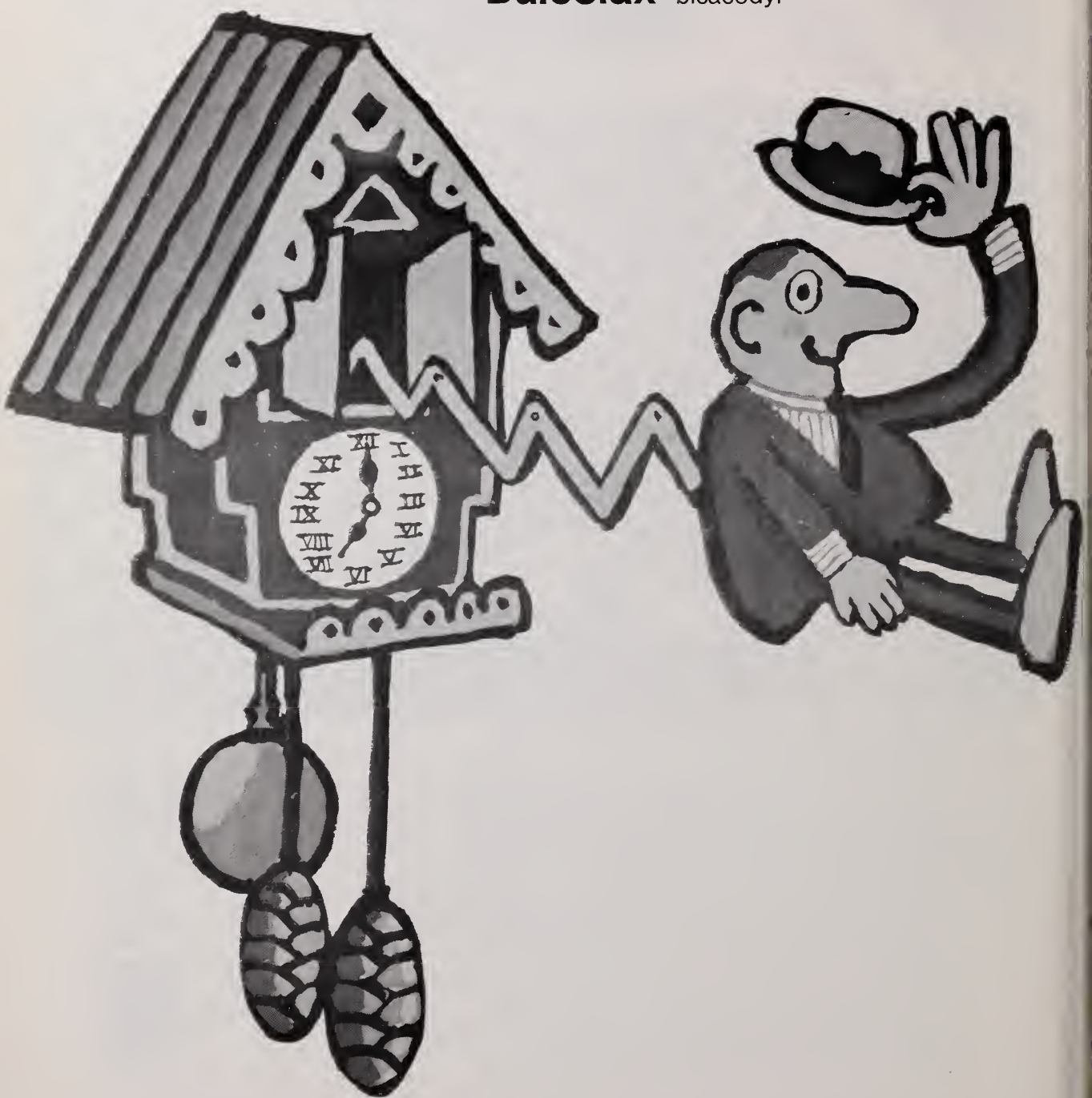
Dulcolax®...so predictable you can almost set patients by i

Dulcolax works so effectively that the time of bowel evacuation can often be predicted.

Dulcolax tablets taken at night will usually result in a convenient bowel movement the following morning. Dulcolax suppositories generally work within 15 minutes to an hour.

Dulcolax may be given to the aged, pregnant or nursing women, and children. It may be particularly helpful in conditions in which straining should be avoided. The drug, however, is contraindicated in the acute surgical abdomen.

Dulcolax® bisacodyl



UNDER LICENSE FROM BOEHRINGER INGELHEIM G.M.B.H. CIBA CIBA PHARMACEUTICALS, DIVISION OF CIBA CHEMICAL CORPORATION, ARDSLEY, NEW YORK 10502

for the patient who has "everything"...



Cheracol® Capsules

for temporary relief of minor aches, pains, headache and stuffy nose due to the common cold

Each capsule contains:

Chlorpheniramine Maleate	2 mg.
Orthoxine® (methoxyphenamine) Hydrochloride	25 mg.
Aspirin	324 mg. (5 grs.)
Caffeine Anhydrous	32.4 mg. (½ gr.)

Indications: Temporary relief of symptoms of common cold. Not recommended for children under 12 years.

Warnings: Frequent or prolonged use may cause nervousness, restlessness or drowsiness. Patients should not drive or operate machinery while taking this medication. Use with caution in patients with high blood pressure, heart disease, diabetes or thyroid disease.

Dosage: One capsule every 4 hours. Not more than four capsules should be taken in 24 hours.

Supplied: Available in packages of 24 capsules.

---

also available:

Cheracol D® Syrup

for temporary relief of coughs due to common colds and minor throat irritations

Each fluid ounce contains:

Dextromethorphan Hydrobromide	9/10 gr. (60 mg.)
Chloroform*	2 grs.
Glyceryl Guaiacolate	1⅔ grs.
Ammonium Chloride	8 grs.
Antimony Potassium Tartrate	1/12 gr.
Alcohol	3%

with white pine and wild cherry bark

*Some loss of chloroform is unavoidable.

Dosage: *Adults* – 1 to 2 teaspoonfuls. *Children 6 to 12 years* – ½ to 1 teaspoonful. *Children 2 to 6 years* – ½ teaspoonful. Repeat in four hours, if necessary, but not more than four times in 24 hours.

This preparation should not be administered to children under two years of age unless directed by a physician.

Supplied: Bottles of 2 and 4 fluid ounces.

© 1969 BY THE UPJOHN COMPANY

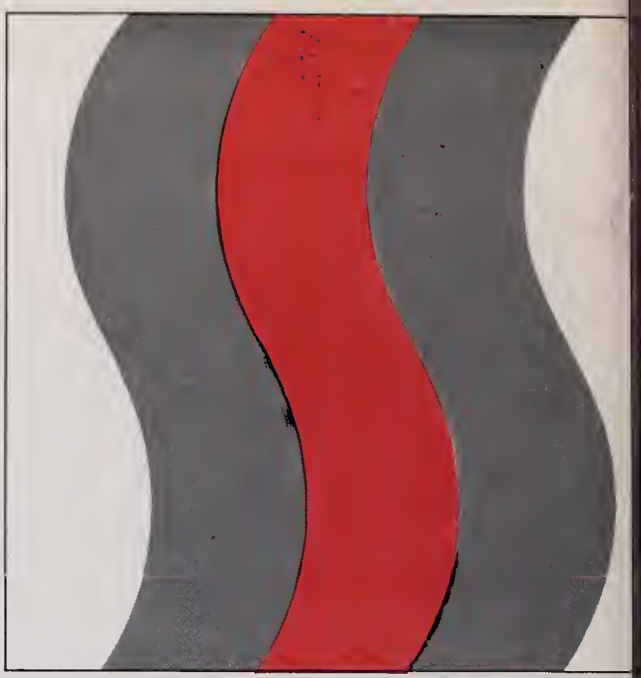
693 PR 5354-1

UPJOHN INTER-AMERICAN CORPORATION
CAPARRA/PUERTO NUEVO

Upjohn



from the discord of anxiety...



to emotional harmony

with the aid of antianxiety

Librium®
(chlordiazepoxide HCl)

5-mg, 10-mg and 25-mg capsules

In an age of swift change and challenge, susceptible individuals may experience varying degrees of excessive anxiety. The resulting emotional stress may precipitate significant functional disorders or complicate existing organic disease. In properly individualized maintenance dosage, Librium (chlordiazepoxide HCl) quickly helps relieve anxiety and apprehension, provides useful adjunctive therapy in psychophysiologic disorders—yet seldom impairs mental acuity or ability to function. Librium has demonstrated a wide margin of safety in short- and long-term therapy.

Also available:

Libritabs®
(chlordiazepoxide)

ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution i administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed agains its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limit t smallest effective dosage (initially 10 mg or less per day) to preclude atax or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, i combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiati drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Empl usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measure necessary. Voriable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion moy occur, especiall in the elderly ond debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lowe dosage ranges. In o few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrua irregularities, nausea and constipation, extrapyramidal symptoms, increas and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fost activity) may appear during and after treatment; blood dyscrasios (including agranulocytosis), jaundice and hepatic dysfunction hove been reported occasionally, mokin periodic blood counts and liver function tests advisable during protracted theropy.

DISPLAY
SHELVES

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

EPIDEMIOLOGY OF BUNDLE BRANCH BLOCK IN PUERTO RICO 418
Ramón M. Suárez, MD, FACP, and Ramón M. Suárez, Jr., MD

THE CAPTIVE PSYCHIATRIST 425
John L. Simon, MD, FACP, FAPA

"¿HACIA DONDE VAMOS?" 429
Discurso
Martín A. Iguina Mora, MD

NON-UNION OF FRACTURES OF THE FOREARM IN ADULTS, PREVENTION AND TREATMENT 432
E. Blas Ferraiouli, MD, FACS, DABS

POSTOPERATIVE INFECTION IN DOGS 436
E. A. Santiago Delpín, MD, C. Ramírez Schon, MD, P. Rodríguez-Millán, MD, F. E. Oliveras, MD and V. Pérez Cintrón, MT

EDITORIAL 440
Diálogo y Acción

NOTA BIOGRAFICA: DR. E. A. MONTALVO DURAND 442

NOTICIAS 444
CONTENIDO – VOLUMEN 61 448
INDICE DE AUTORES 456
INDICE DE MATERIAS 459

THE FRANCIS A. C[illegible] WAY
LIBRARY OF MED[illegible]E
10 MAR 1970

VOL. 61 DICIEMBRE, 1969

[illegible]CAL CORPORATION
[illegible]ork, N.Y. 10017

Why DBI-TD (phenformin HCl) is the only significant advance in oral diabetes therapy since sulfonylureas



□ glucose ○ insulin

1 Only DBI-TD does more than just lower blood sugar–it directs sugar primarily to where it is most needed... in muscle.

In the maturity-onset diabetic, blood sugar is elevated, but apparently not enough glucose enters muscle. Unlike other agents, DBI-TD increases glucose utilization primarily in skeletal muscle where sugar is needed.

2 Only DBI-TD actually promotes weight loss in the maturity-onset diabetic who is overweight.

All oral drugs *except* DBI-TD increase insulin release, which suppresses lipolysis and can accelerate lipogenesis. Thus DBI-TD, by avoiding insulin oversecretion, appears to ease—rather than aggravate—the weight problem in patients unresponsive to diet alone.

3 Only DBI-TD, among oral agents, helps counterbalance the inefficient action of the diabetic's own insulin.

There is increasing evidence that many overweight maturity-onset diabetics have higher than normal blood insulin levels, but this insulin is not efficient in promoting muscle glucose uptake. Unlike all other oral agents, DBI-TD helps control diabetes by selectively moving sugar into muscle without further increasing insulin levels.

4 Only DBI-TD, because of its unique action, reduces the risk of secondary failure and hypoglycemic reaction.

DBI-TD is the only agent that lowers blood sugar without stimulating the release of insulin from the pancreas. Secondary failures are infrequent with DBI-TD, and there is relative freedom from hypoglycemic reaction when DBI-TD is used alone.

a more physiological approach to begin with

DBI®-TD

(phenformin HCl)

timed-disintegration capsules 50 mg.

Dosage: 1 to 3 capsules daily. **Side Effects:** Gastrointestinal, occurring more often at higher dosage levels, abate promptly upon dosage reduction or temporary withdrawal. **Adverse Reaction:** Urticaria. **Precautions:** Occasionally an insulin-dependent patient will show "starvation" ketosis (acetonuria without hyperglycemia) which must be differentiated from "insulin lack" ketosis which is accompanied by acidosis, and treated accordingly. Lactic acidosis has been reported in nondiabetics and diabetics treated with insulin, with diet, and with DBI. Question has arisen regarding possible contribution of DBI to lactic acidosis in patients with renal impairment and azotemia and also those with severe hypotension secondary to myocardial or bowel infarction. Periodic B.U.N. determination should be made when DBI is administered in the presence of chronic renal disease. DBI should not be used when there is significant azotemia. Any cardiovascular lesion that could result in severe or sustained hypotension, which may itself lead to development of lactic acidosis, should be considered cause for immediate discontinuation of DBI at least until normal blood pressure has been restored and is maintained without vasopressors. Should lactic acidosis occur from any cause, vigorous attempts should be made to correct circulatory collapse, tissue hypoxia, and pH. **Contraindications:** Severe hepatic disease, renal disease with uremia, cardiovascular collapse. Not recommended without insulin in acute complications of diabetes (metabolic acidosis, coma, severe infections, gangrene, surgery). ***Pregnancy Warning:*** *During pregnancy, until safety is proved, use of DBI, like other oral hypoglycemic drugs, is to be avoided.* **Also Available:** DBI tablets 25 mg. *Consult product brochure.*

USV

USV PHARMACEUTICAL CORP., New York, N.Y. 10017
Producers of ARLIDIN® (nylidrin HCl)



Lets you fit the formula to the infant

Carnation Evaporated Milk is not a rigid, ready-made infant formula. ▪ You choose the kind and amount of carbohydrate to be added. ▪ You specify the dilution with water. ▪ You maintain the right to prescribe the vitamin preparation of your choice. ▪ And you make the decision whether supplemental iron is needed. ▪ You fit the formula to the infant.

Millions of babies have benefited from *flexible, nutritious, economical* Carnation Evaporated Milk formulas . . . a tradition in infant feeding.

Specify Carnation Evaporated Milk and you specify Carnation quality.

From a world leader in nutritional research . . . Carnation®

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

Fundado en 1903

JUNTA EDITORA:

Julio V. Rivera, *Presidente*
Stanley H. Asencio
V. Bernal y del Río
Herman J. Flax
M. R. García Palmieri
Lillian Haddock
F. Hernández Morales
J. Just Viera
José E. López
Norman Maldonado
Nathan Rifkinson
Ramón Torres Pinedo

SECRETARIO DE REDACCION:
Sr. Gregorio Díaz

ASESOR:
José E. Sifontes

Oficina Administrativa:
Edificio de la Asociación Médica de Puerto Rico, Ave. Fernández Juncos Núm. 1305, Apartado de Correos 9387, Santurce. Puerto Rico 00908. Tel. 725-6969.

Anuncios y Suscripciones:
El Boletín se publica mensualmente. El precio de suscripciones es de $5.00 por año. Todo material de anuncio está sujeto a aprobación por la Junta Editora.

Reimpresos:
Podrán ordenarse reimpresos de los artículos a publicarse cuando se reciba notificación de su aceptación.

Second class postage paid at San Juan, Puerto Rico.

Otro nuevo descubrimiento de Lakeside



cuando la depresión abruma

NORPRAMIN
(clorhidrato de desipramina)

el ANTIDEPRESIVO
no-sedante de acción rápida

vence el abatimiento, levanta el ánimo, restablece la confianza

La depresión frecuentemente se caracteriza por sentimientos de culpabilidad, inutilidad, desolación y privación. Estas manifestaciones, acompañadas de síntomas tales como insomnio, malestar, tristeza y recelo, responden rápidamente al NORPRAMIN (clorhidrato de desipramina). La mejoría generalmente se manifiesta 2 a 5 días después de iniciado el tratamiento; algunas veces antes. Los pacientes con sensibilidad comprobada a estimulantes del sistema nervioso central, pueden experimentar excitación al desaparecer su depresión; en estos casos se sugiere reducir la dosis o administrar simultáneamente tranquilizantes.

Indicaciones: Depresiones de todo tipo, reacciones depresivas neuróticas o psicóticas; reacciones maniaco-depresivas o involucionales.

Posología: Se obtienen resultados óptimos con una dosis de 150 mg. diarios.

Contraindicaciones y Precauciones: Glaucoma, espasmo uretral o ureteral, infarto reciente del miocardio, trastornos cardiacos coronarios graves y epilepsia. No deberá administrarse durante las dos semanas subsiguientes a la suspensión de la terapia con inhibidores de monoamino-oxidasa. La seguridad de su empleo en el embarazo no ha sido aún establecida.

Reacciones Adversas: Pueden presentarse los siguientes efectos secundarios, generalmente leves: sequedad de boca, estreñimiento, mareo, palpitación, micción retardada "mal sabor", ilusiones sensorias, tinnitus, agitación y estimulación, sudoración, somnolencia, jaqueca, hipotensión ortostática, rubor, náusea, calambres, debilidad, visión borrosa y midriasis, salpullido, alergia, eosinofilia transitoria, granulopenia, alteraciones de la función hepática y signos extraoiramidales.

Presentación: NORPRAMIN (Clorhidrato de desipramina)—tabletas de 25 mg. en frascos de 50, 500 y 1000. Tabletas de 50 mg. en frascos de 30, 250 y 1000.

LAKESIDE

PRODUCTOS
PARA PACIENTES
QUE USTED
VE A DIARIO

Lakeside Laboratories, Inc. Milwaukee, Wisconsin 53201—EE.UU.



There's more to being a Triple S participating physician than having 135,000 prospective patients



An impressive figure?
Not really. When you put it up against the hundreds of millions of people in this world that depend upon the medical profession. this figure becomes minuscule.
We think physicians join TRIPLE S for the personal satisfaction that comes from knowing their doors are open to everyone that might need them.
One of our physicians put it this way: "I guess it all boils down to a deep sense of social responsibility and concern for the people that depend so much upon our profession".

Member of the National Association of Blue Shield Plans



Diagnostic Products, Dow Chemical Inter-American, Ltd., 1500 S. D. Roosevelt Avenue Bldg., Caparra, Puerto

Blood chemistries, made to measure.

Diagnostest® reagent sets and instruments make up a quick, easy-to-us blood chemistry system that meets clinical laboratory requirements fo precision and accuracy. It features premeasured reagent volumes in di posable glass cuvettes, plus disposable micropipettes. Standards are pr vided with every set. Diagnostest reagent sets are available for measurin hemoglobin, glucose, urea nitrogen, cholesterol, uric acid, total bilirubi total serum protein, total serum globulin, albumin A/G ratio and LDH. Wit between-run precision of ±10% or better (depending on test) at 95% co fidence limits. Write for our latest Technical Bulletin. We'll show you ho Diagnostest measures up.

©The Dow Chemical Compa

DOW

EPIDEMIOLOGY OF BUNDLE BRANCH BLOCK IN PUERTO RICO

Ramón M. Suárez, MD, FACP
Ramón M. Suárez, Jr., MD

In 1945, one of us reported a case of transient left bundle branch block (1). The electrocardiogram was interpreted and commented upon by the late Frank N. Wilson. This conduction defect became permanent a few months later but in spite of it, the patient lived a practically normal life for over 15 years and died in 1960, following a cholecystectomy from what appeared to have been a ruptured aorta.

In 1948, we reported a study of 58 cases of complete bundle branch block (2) observed in Puerto Rico among 1,600 cardiovascular patients. The youngest patient was 11 years old, the oldest 80, and the average age was 54. Only one patient below the age of 20 was seen.

Atherosclerosis was supposed to be the predominant etiological factor (60 percent), followed by arterial hypertension (27 percent). Syphilis, rheumatic fever and congenital heart disease were of minor importance.

Death rate was definitely higher for left (50 percent) than for right bundle branch block (12 percent).

Contrary to the general belief at the time, right bundle branch block was somewhat more common than left bundle branch block. There were 32 cases of the former and 26 cases of the latter.

A sinus tachycardia of over 100 was the usual finding in left bundle branch block, while a normal pulse rate predominated in right bundle branch block.

Materials

We are now reporting our experience with the various types of bundle branch block as observed in 30,630 electrocardiograms taken during a period of 30 years, from February 1937 to February 1967, at a small private hospital in Puerto Rico.

Criteria for diagnosis of complete left bundle branch block (3):

1. QRS duration of 0.12 second or greater in lead II.
2. An R peak duration of 0.06 second or more in any of leads I, II, aVL, V5, V6.
3. An absent septal Q wave in lead I and in left precordial leads with an upright R wave.

Criteria for diagnosis of right bundle branch block:

1. QRS width of 0.12 second or greater in lead II.
2. Wide terminal S wave in leads I and V6.
3. Wide R^1 in V1.

The classic right bundle branch block shows a small r and broad deep S wave in lead I, taller wide R waves in leads II and III often preceded by a q of variable width, and a tall, late R wave in V1 and V2 with diminishing R waves and S waves of increasing depth across the left precordium.

The variant form of right bundle branch block is also easily identified from the larger group, according to the criteria of Massie and Walsh which are consistent with Wilson's description: an rS complex in lead II (mean QRS deviated leftward of -30°) and an rS complex in lead aVF (terminal forces directed inferiorly).

Right bundle branch block with left axis deviation (Bayley's type 3), described by Massie and Walsh and by Wolff, conforms to the same criteria as the variant type, except that the QRS complex in aVF must be an rSr^1 (terminal forces directed inferiorly).

According to Edmunds, the common type of right bundle branch block is made up by the total group less those identified as classic, the variant type and those with left axis deviation.

Left axis deviation in "atypical" (common) right bundle branch block should arouse suspicion of associated left ventricular hypertrophy. Right bundle branch block with leftward deviation of QRS axis, whatever the orientation of the terminal force, appears to be frequently associated with significant cardiovascular disease.

Of the 38 cases studied by Edmunds none fulfilled the criteria for classic right bundle branch block.

Anatomy of the bundle branches in the human heart:

The following is a description of the anatomy of the bundle branches in the human heart graciously supplied to us by Thomas N. James (4), Chairman, section on Cardiovascular Research of the Henry Ford Hospital in Detroit, Michigan.

"Both bundle branches originate from the A-V bundle (His bundle) during its course near the posterior margin of the membranous ventricular septum. At this point the undivided AV bundle has reached the crest of the muscular ventricular septum after having passed a short distance through the central fibrous body. The left bundle branch is a sheet

From Fundación de Investigaciones Clínicas and Hospital Mimiya, Santurce, Puerto Rico.

of fibers which leave the common bundle during most of its course, and cascade down the septum under the endocardium. The left bundle branches divide into two main groups, one coursing generally toward the base of the anterior papillary muscle and the other toward the posterior papillary muscle. The right bundle branch by contrast is a single slender branch which originates at various points from the common bundle relative to the left septum. It courses in a false tendon toward the base of the papillary muscle of the right ventricle, thus passing beneath the crista supraventricularis. The blood supply of the His bundle and both proximal branches is provided from the diaphragmatic surface of the heart, usually by a branch of the right coronary artery. The blood supply to the more distal bundle branches is provided by the septal branches of the left anterior descending coronary artery."

Results

Bundle branch block was found in 1036 (3.3 percent) of the 30,630 electrocardiograms. There were 437 cases of complete right bundle branch block (RBBB), 309 cases of complete left bundle branch block (LBBB), 183 cases of incomplete right bundle branch block, and 49 cases of incomplete left bundle branch block.

Cases of Wolff-Parkinson-White syndrome were excluded from the study.

The male sex predominated (Table I). In the group of complete right bundle branch block there were 314 men and only 123 women. Males were 194 and females 115 in the group of complete left bundle branch block. In the group of incomplete right bundle branch block, males were 130 and females 53, while in that of incomplete left bundle branch block there were 33 males and only 16 females.

In the last 973 electrocardiograms age varied between 4 and 96 years. There were 28 cases below the age of 20, 69 cases above the age of 80, and only 8 cases aged 90 and above. The average age in the entire group of 1036 cases was 54.5 years.

Twenty of the 28 cases aged 20 or less showed incomplete right bundle branch block, 7 showed complete right bundle branch block, only 1 showed complete left bundle branch block. No case showing incomplete left bundle branch block was observed.

On the other hand, among 69 cases aged 80 and over, incomplete right bundle branch block was seen only in 8 instances, while complete right bundle branch block was encountered in 35, complete left bundle branch block in 24, and incomplete left bundle branch block in only 2.

Axis Deviation of QRS:

The percentage distribution of axes of QRS in the frontal plane in bundle branch block can be seen in Table II.

Axis deviation was determined by plotting the algebraic sum of R1 and S1 and of R3 and S3 on the well known Einthoven's triangle. The point of intersection of those lines connected to the center of the triangle and projected to the circumference gives the angle degree.

From 0°to +90°is considered a normal axis. From 0° to -90° is considered left axis deviation and from +90°to +180° right axis deviation.

In complete left bundle branch block 85 percent showed left axis deviation, while in cases of complete right bundle branch block only 53 percent showed left axis deviation.

QRS complexes in AVF:

There were at least 28 different forms of QRS complexes observed in lead aVF in cases of complete right bundle branch block. The following patterns predominated: rS in 28 percent (terminal forces directed superiorly), rs in 13.6 percent, Rs in 12.3 percent, qR in 7.7 percent, rSr^1 in 5.0 percent (ter-

TABLE I: SEX DISTRIBUTION IN CASES OF BUNDLE BRANCH BLOCK

	RBBB		LBBB	
	Complete	*Incomplete*	*Complete*	*Incomplete*
Males	314	130	194	33
Females	123	53	115	16
Total	437	183	309	49

TABLE II: PERCENTAGE DISTRIBUTION OF AXES IN THE FRONTAL PLANE IN BUNDLE BRANCH BLOCK

	RBBB		LBBB	
	Complete	*Incomplete*	*Complete*	*Incomplete*
Left Axis	53	44	85	82
Right Axis	17	16	1	0
Normal Axis	30	40	14	18
Total	100	100	100	100

minal forces directed inferiorly), Q wave in 4.5 percent, qr in 3.9 percent, RS in 3.2 percent, and Rs in 2.5 percent.

Cardiovascular Complications:

The most frequent cardiovascular complications were: myocardial infarction (23 percent), auricular fibrillation (22 percent), ventricular premature beats (10 percent), auricular premature beats (6 percent), and evidences of digitalis effect in 6 percent.

Arterial hypertension was present in 12 percent of the cases, and evidences of cardiac hypertrophy in 15 percent.

Valvular heart disease was rarely observed among the group of complete bundle branch block but diabetes, hypercholesterolemia and emphysema were not at all rare.

Other concomittant or complicating conditions occasionally encountered were cirrhosis of the liver, prostatic hypertrophy, thrombophlebitis, inguinal hernia and congestive heart failure. One case of brain syndrome and another case of chronic schistosomiasis were diagnosed.

We have failed to complete, as yet, data on mortality and on causes of death of this group of cases of bundle branch block.

Atrioventrioventricular Block:

In the group of 973 cases of bundle branch block (complete and incomplete) observed from 1948 to 1967 we found 38 cases (3.9 percent) of first degree A-V block and 17 cases (1.8 percent) of both second and third degrees A-V block. In both groups males predominated in the ratio of 3:1.

Among the 38 cases showing first degree A-V block there were 16 cases of RBBB, 13 cases of LBBB, 8 cases of incomplete RBBB and only 1 case of incomplete LBBB.

In the group of 17 cases showing either second or third degree A-V block, there were 15 cases showing RBBB and only 2 cases showing LBBB. All the cases of RBBB but one showed marked left axis shift.

A few of the cases of first degree A-V block could be attributed to the previous administration of digitalis, but in only one case could such relation be established in our cases of 2nd and 3rd degree heart block.

Three of the 17 cases of 2nd and 3rd degree A-V block died during a Morgagni-Stokes-Adams attack. All three were women. One was 71 years old. The other 2 were mother and daughter. At the time of death the mother was 64 years old and the daughter 31. Their heart block was probably of congenital origin without associated interventricular septal defect.

Illustrative Cases:

We are presenting two illustrative cases. One is a case of left bundle branch block, occurring shortly after an attack of acute coronary thrombosis, and the other is a case of right bundle branch block which, in the course of years, has developed complete heart block.

The first case is a woman, A.G., 54 years old, whose electrocardiogram on June 15, 1964 showed only marked left axis shift (Fig. 1). Fluoroscopy revealed a slightly dilated and tortuous aorta and a soft grade 2 systolic murmur was heard on auscultation. On August 26, 1965 she suffered an attack of acute coronary thrombosis with anteroseptal myocardial infarction. Two days later her electrocardiogram revealed the presence of complete left bundle branch block which persisted until September 30, 1965 when the evidences of bundle branch block disappeared and those of anteroseptal myocardial infarction were again evident. On February 2, 1966 the typical pattern of left bundle branch block reappeared, accompanied by marked elevation of ST segments in V1, V2, V3, V4 and V5, suggesting aneurysmal thinning of the ventricular wall (Fig. 2). This possibility was discarded by the rather rapid return of the ST segments to isoelectric line observed in subsequent records. The pattern of complete LBBB has persisted to date.

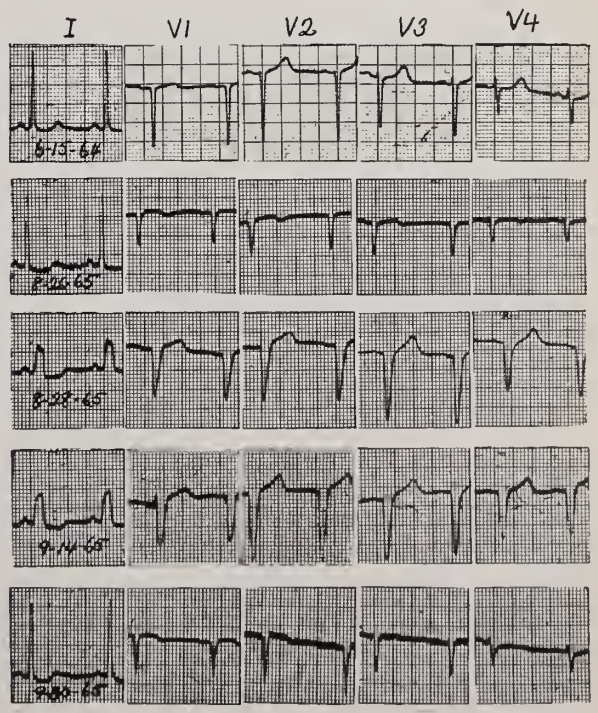


Fig. 1 - *A. C. - Woman, 54 years old. The first electrocardiogram showed only marked left axis shift. An anteroseptal myocardial infarction (2-26-65) was followed by intermittent LBBB which finally became permanent.*

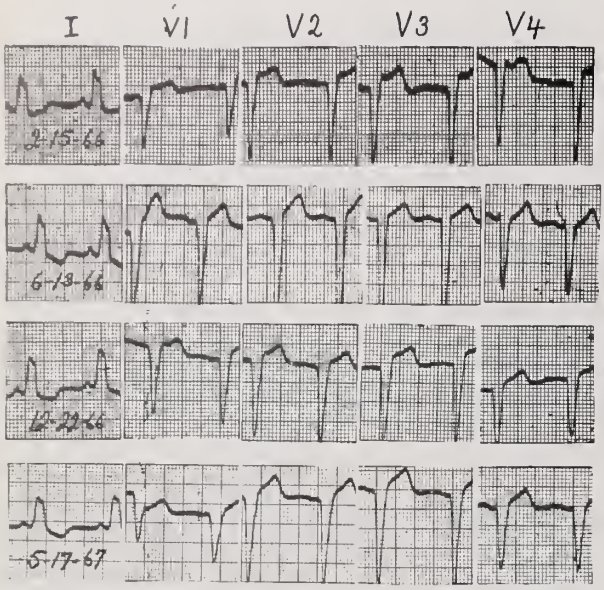


Fig. 2 - *A. G. - Serial ECG continued from Fig. 1, showing established LBBB following an anteroseptal myocardial infarction with marked elevation of ST segments in V_1, V_2, V_3 and V_4 on 2-15-66 which gradually returned to isoelectric line.*

It might be of interest to state that this woman's severe angina pectoris, uninfluenced by nitrates, apparently responded when propranolol was added to the oral nitrate medication. She is alive and doing quite well nearly three years after her heart attack.

The other patient (L.F.) has been followed for the last 16 years. On October 21, 1952 when this man was 68 years old, his electrocardiogram (Fig. 3) showed complete right bundle branch block with an axis deviation of QRS of -60°. Subsequent records obtained in July 1957, April 1959 and September 1959 failed to show any other abnormality except gradual prolongation of P-R interval up to 0.28 second. On May 4, 1960 (Fig. 4) the electrocardiogram revealed skipped beat. There were no other changes until the record taken on February 1, 1963 when a 2:1 heart block became evident. This heart block has persisted showing 2:1 and 3:1 conduction defects except for the records taken on September 27, 1963 (Fig. 5) and on February 24, 1964, in which the complete book had temporarily responded to the sublingual administration of Isuprel. The electrocardiogram (Lead III) taken on April 21, 1966 showed 4:1 A-V block (Fig. 6).

This patient refused electrical pacing four years ago when he suffered several attacks of Adams-Stokes syndrome and is alive today at 85.

Discussion

It is a well known fact that complete right bundle branch block bears less ominous prognosis than com-

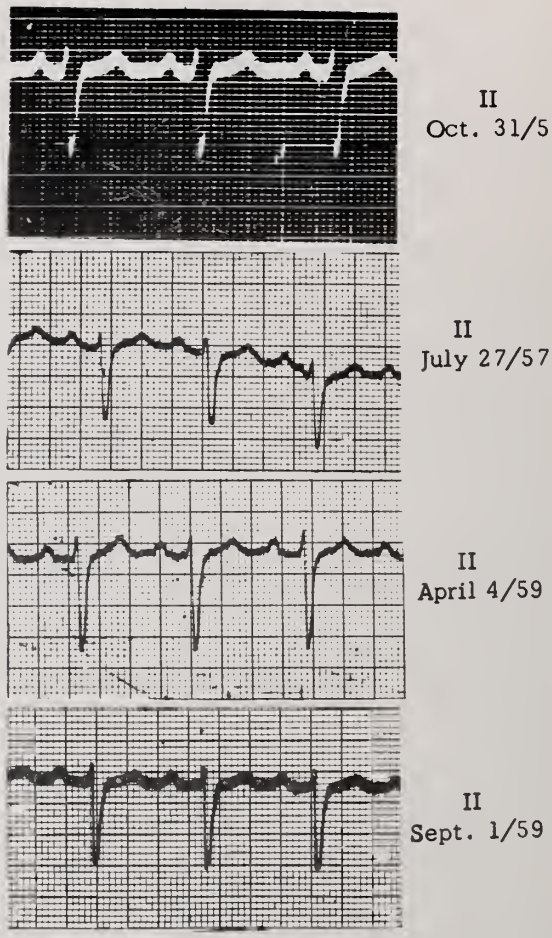


Fig. 3 - *Patient L. F. - An example of the pattern of complete RBBB with axis deviation of QRS of 60° showing progressive development of the more severe types of heart block in Figures 4, 5 and 6. This patient has been followed for the last 16 years. His present age is 85.*

plete left bundle branch block. It is also known that the presence of right bundle branch block in patients with mitral stenosis may signify severe pulmonary hypertension and that its presence in the post-operative period, accompanied by dyspnea and shock, may indicate massive pulmonary embolism.

Lenegre (5) noted that the pattern of right bundle branch block with marked left axis deviation, more negative than -30° was characterized pathologically by involvement of both bundles often sparing the A-V node completely and that this was a frequent finding in patients dying of complete heart block.

He also stated that this conduction impairment was first noticed by Mahaim and that it may occur as diffuse fibrosis in aortic valve disease, hypertension,

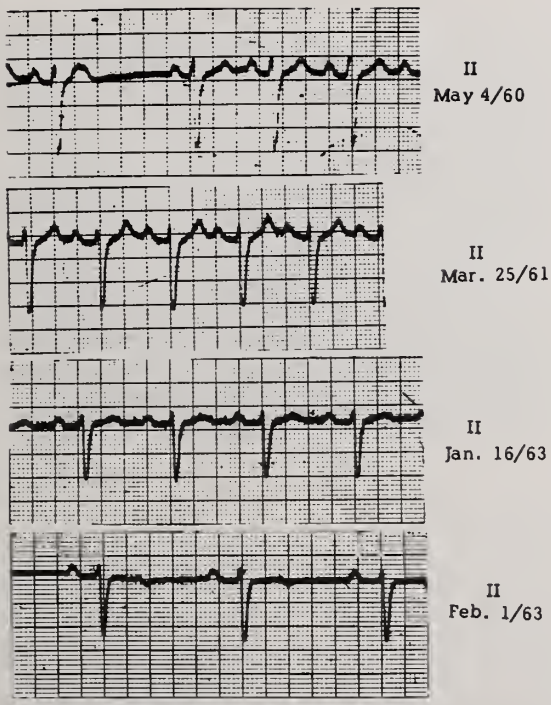


Fig. 4 - *Patient L. F. - Showing progressive development of complete heart block. Skipped beats, prolonged P. R. interval and 2:1 heart block.*

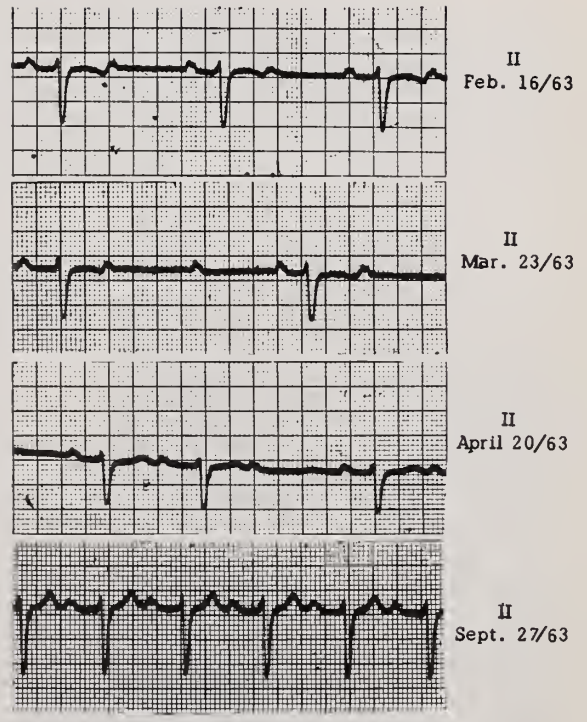


Fig. 5 - *Patient L. F. - Showing again the evolution from RBBB with marked left axis deviation to complete heart block and effect from sublingual Isuprel (Record - Sept. 27/63).*

primary idiopathic myocardial disease, alcoholic cardiomyopathy, in Chagas disease as well as in the majority of cases of defects of the atrioventricular canal.

The risk of developing complete heart block in an unselected series with this pattern is about 10 percent.

More recently, Lasser, Haft and Friedberg (6) stated that the electrocardiographic pattern of complete right bundle branch block with marked left axis deviation (more negative than -30°) is by far the most common precursor or attendant of complete heart block. The pattern may occur in two forms, as right bundle branch block combined with either left anterior parietal block or left anterior peri-infarction block.

They further claim that since 10 percent of patients who acquire the pattern (RBBB with marked left axis shift) may at some time develop complete heart block and Adams-Stokes syndrome, a history of syncope or transient dizziness should suggest that episodes of heart block have occurred.

The above mentioned statements have received confirmation in an editorial which appeared in The Lancet (7). From it we quote: "The commonest lesion associated with chronic heart block is a peculiar fibrosis of the conducting tissues affecting both bundle branches or less often the main bundle. The cause is obscure, but ischemia is not an important factor. Pacing is usually rewarding for despite the lesion of the conducting system, the myocardium and coronary arteries are usually in good condition. Permanent heart block is an uncommon sequel of myocardial infarction."

That pacing may be rewarding is illustrated by case S. S. (Fig. 7). This is a 46-year old man whose electrocardiogram shows a well functioning pacemaker implanted in 1963.

This study, although incomplete as to data on mortality and on causes of death, reveals that a case of left bundle branch block had lived for over 15 years, that a case of complete left bundle branch block developed during the course of an attack of myocardial infarction is living three years later, and that a case of complete right bundle branch block showing marked left axis shift has, during a period of 16 years, developed first degree A-V block, 2nd degree A-V block, and lastly 3rd degree A-V block (Fig. 6a) which finally required

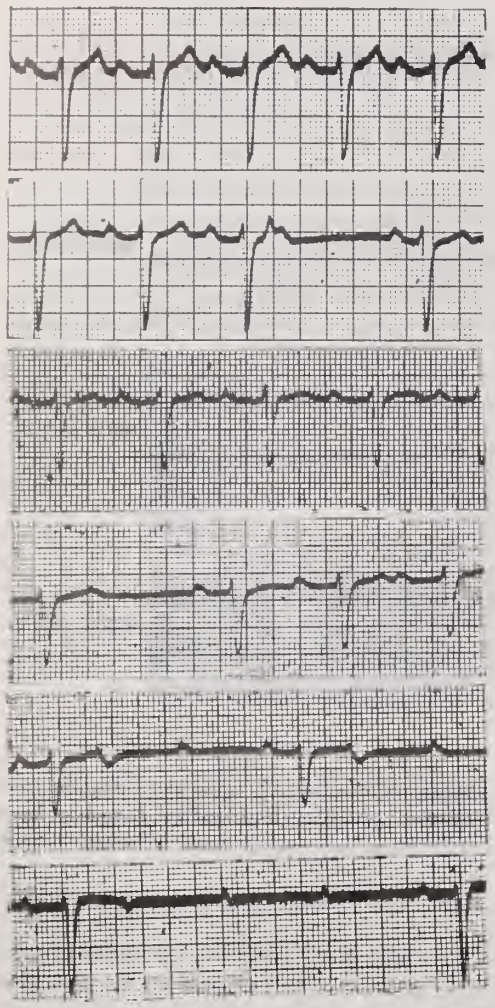


Fig. 6 - *Patient L. F. - Showing the effect of Isuprel in record taken on 2-24-64 and various degrees of A-V block in the other records.*

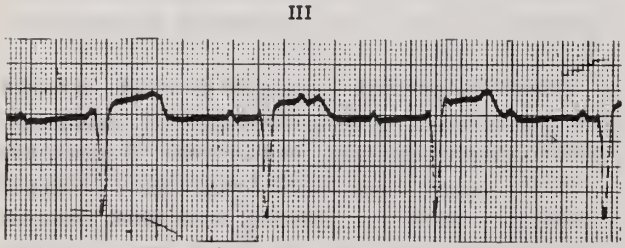


Fig. 6a - *Patient L. F. - Age 85 - Complete AV block - May 30, 1968.*

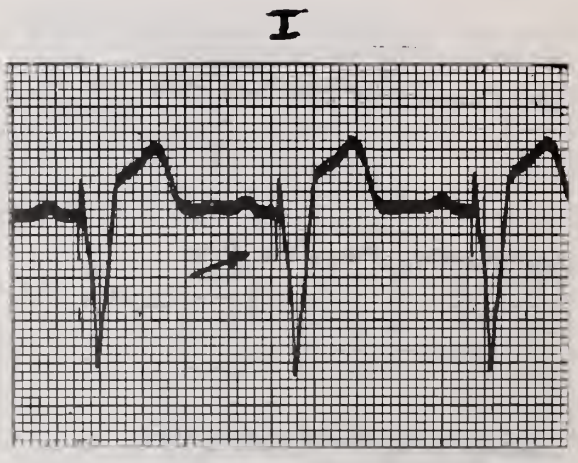


Fig. 7 - *S. S. Age 46 - Record No. 19697. Pacemaker implanted 8/15/63.*

the transvenous implantation of an electric pacemaker.

It is apparent from this study that we must be careful while establishing prognosis based on statistics in our evaluation of patients suffering from left bundle branch block. Friedberg (8) was right when he stated that "in general, it is safer to evaluate the patient and his disease as a whole rather than to base a prognosis on the presence and type of bundle branch block."

Summary

We have presented a study of 1036 cases of bundle branch block observed among 30,630 electrocardiograms obtained in a private hospital in Puerto Rico during a period of 30 years.

Complete right bundle branch block was present in 437 instances and complete left bundle branch block in 309. Incomplete right bundle branch block was observed in 183 cases and incomplete left bundle branch block in 49. Incomplete right bundle branch block was a rather frequent finding in the young and rare in the elderly.

There was left axis deviation of the QRS complexes in 53 percent of cases of complete right bundle branch block, while 85 percent of cases of left bundle branch block showed left axis shift.

In a group of 17 cases showing either 2nd or 3rd degree atrioventricular block, 15 cases showed the pattern of right bundle branch block, while only 2 cases showed that of left bundle branch block. All the cases of right bundle branch block but 2, showed marked left axis deviation.

Complete right bundle branch block bears a less ominous prognosis than complete left bundle branch

block, except when it is accompanied by marked left axis shift of the QRS complex.

The combination of right bundle branch block and marked left axis deviation of the QRS complex is a frequent precursor of 3rd degree (complete) A-V block and consequently of Morgagni-Stokes-Adams attacks.

Resumen

Hemos presentado un estudio de 1036 casos de bloqueo de rama encontrados entre 30,630 electrocardiogramas tomados en un hospital privado de Puerto Rico durante un período de 30 años desde el 1937 al 1967.

Encontramos 437 casos de bloqueo completo de rama derecha y 309 casos de bloqueo completo de rama izquierda. El bloqueo incompleto o parcial de rama derecha apareció en 183 casos y el incompleto de rama izquierda en solo 49. La edad promedio para todo el grupo fue de 58.5 años. En todos los grupos predominaron los hombres sobre las mujeres.

La desviación axial izquierda del complejo QRS apareció en 53 porciento de los casos de bloqueo completo de rama derecha, mientras que 85 porciento de los casos de bloqueo completo de rama izquierda demostraron desviación axial izquierda.

Quince de los 17 casos de bloqueo atrioventricular de 2do y 3er grados presentaron el patrón de bloqueo de rama derecha, mientras que en solo 2 casos pudimos observar el de rama izquierda. Todos los 15 casos presentaban marcada desviación izquierda del complejo QRS.

La asociación de bloqueo de rama derecha con gran desviación izquierda del complejo QRS parece indicar una más comprometida condición del corazón y un pronóstico mucho más serio.

Acknowledgment

We are grateful to Dr. M. R. García-Palmieri for having read the manuscript and offered valuable suggestions.

References

1. *Suárez, R. M.:* Bloqueo de rama transitorio. Bol. Asoc. Méd. P. Rico 38: 375, 1946.
2. *Suárez, R. M.:* A study of bundle branch block. Bol. Asoc. Méd. P. Rico 40: 122, 1948.
3. *Edmunds, R. E.:* An epidemiological assessment of bundle branch block. Circulation, 34: 1081, 1966.
4. *James, T. N.:* Personal communication.
5. *Lenegre, J.:* Etiology and pathology of bilateral bundle branch block in relation to complete heart block. Progr. Cardiov. Dis.: 6: 049, 1964.
6. *Lasser, Richard P., Haft, J. I., and Friedberg, C. H.:* Relationship of right bundle branch block and marked left axis deviation (with left parietal or peri-infarction block) to complete heart block and syncope. Circulation 37: 429, 1968.
7. Editorial: Etiology of complete heart block. The Lancet - 1: 731, 1968.
8. *Friedberg, C. H.:* Diseases of the Heart, W. B. Saunders, New York, 1958.

THE CAPTIVE PSYCHIATRIST

John L. Simon, MD, FACP, FAPA

Considerable overselling of psychiatry has gone on during the last fifty years. As a result of claims for psychiatry, which many people including the author of the present paper consider exaggerated, the medical public and the public in general have been led to expect more of psychiatric treatment than it can deliver. Although the number of psychiatrists in private practice, thought by many to be the limiting factor in achieving results, has increased greatly during the period in question, so has the demand for their services. More important still, however, is the change in the quality of the demand for psychiatric services. Whereas a comparatively few years ago a great preponderance of those requesting psychiatric services did so on their own initiative, with the increasing awareness on the part of the public of psychiatric treatment additional strata of the population have been tapped for psychiatric referral. This has occurred not only on the basis of consciousness on the part of the patient of need for such services but also on the part of their families, of other physicians bothered by their obstinate physical complaints, social service workers and others. If the psychiatrist is to abandon his own scarceness and exclusiveness, in the light of the increasing number who demand his services not only for themselves but for others, he will have to harken to these demands. On the other hand he will also have to face up to the problem posed by exaggerated expectations. In medicine and in paramedical fields, including especially social work, a new generation has grown up indoctrinated with the claims but not always aware of the limitations of psychotherapy. This generation accordingly entertains a disproportionate idea of what psychotherapy may be expected to accomplish. The psychiatrist, in short, becomes a captive of his own or of his predecessor's claims.

Presented at the Semiannual Convention of the Puerto Rico Medical Association - July 4, 1969.

The psychiatrist, generally speaking, sees fewer patients than other physicians and spends more time with each of them. His gratification in his work depends more on the responses of individual patients; his involvement with each is correspondingly greater. Success with a single patient is more encouraging, and failure more disheartening.

The psychiatrist would therefore be inclined to select the most favorable cases for his maximum concentration, that is, his greatest expenditure of time and effort. He would limit himself to briefer and more superficial contact with less promising patients than with those who seemed to promise more ability to profit from contact with the psychiatrist. A patient's intelligence, potential achievement, and so on influence the psychiatrist greatly in selecting patients for concentration.

The patient, for his part, also participates in this process of mutual selection. He also is reluctant to make a heavy investment of time or money when he does not sense a rapport which seems to promise gratifying results. When conditions are not met so that the psychiatrist and the patient both feel that treatment has something significant to offer, treatment is discontinued either at once or gradually, as if by mutual consent.

Yet sometimes pressures are placed on the psychiatrist that render him captive in the treatment of a patient. It is not always easy to avoid being caught up in a situation of being forced to attempt to treat what one feels to be untreatable. Sometimes, of course, success comes where one least expects it. Generally not. Sometimes one achieves some improvement in a bad case. Very frequently, of course, one's gloomy prognosis for treatment is borne out. Some may object, that the gloomy prognosis is self-fulfilling; but who other than the treating psychiatrist is in a position to make the prognosis? It is after all, his sense of the patient and of the situation, his grasp, his rapport, his countertransference if you wish, that is brought to the test, no one else's!

Situations that tend to make captive the psychiatrist

can be divided into three groups – people, problems, and programs. The first two we have always had with us.

There have always been, as long as I have been practicing, people with exaggerated expectations. Refusal to attempt treatment on these grounds, or even excessively blunt efforts to disabuse them, may be traumatic; so one attempts treatment perforce, hoping for at least some palliation. And sometimes one deals adequately with them and the patient and the psychiatrist are satisfied. Of course, not always.

The writer recalls one case, a man then in his forties, whom he treated for years with what passes for moderate success - that is, the patient continued working productively and supporting his family despite severe neurotic problems that threatened disaster. Whether he would have done so just the same without treatment remains an unanswerable question - in this kind of thing you never have controls. Evidently the patient thought treatment helped him, and this certainly passes for success. But this was *not* success if one accepts the goal imposed by the patient's brother, a physician who, in referring him to the much younger psychiatrist, explained that he did not want the patient's condition merely alleviated – he wanted him cured! This, of course, I never believed I achieved nor, indeed, did I ever expect to achieve. Yet in a sense it was a goal imposed upon me, and in a sense I was its captive.

I was to experience captivity many times again, since that early case at the beginning of my practice. There is always the problem that arises when one succeeds with a case; a good result is followed by a referral of an associate of the patient or a member of his family. One knows one can do little, but how refuse? One is always a captive of one's good results. I have no doubt this happens more or less similarly in other branches of medicine.

But there are some problems that hold the psychiatrist captive in a special way. These are problems in which there is a conflict of interests which the psychiatrist in his role as universal fixer-upper is called upon to resolve. They are frequently not posed frankly; indeed, posing a psychiatric question frankly, in regard to a situational problem, is almost a contradiction in terms. When a situation is faced as such, it is not a psychiatric problem; when a situation is made to appear as a psychiatric disorder, it is so made to appear in order to disguise its situational character.

The generation gap, a new term but an old phenomenon, has always been a source of entrapment for the psychiatrist. Parents bring a child to the psychiatrist in order to have the psychiatrist make the child behave as the parents wish. Since the parents control the treatment, by bringing or not bringing the child, the psychiatrist is in an impossible position. As a professional man and expert, he is supposed to dominate the situation with his knowledge in favor of something called mental health which floats above the persons involved and is a neutral universal good, like justice or motherhood or democracy or God. In reality, he had better direct or should I say push the child along the lines the parent demands, or get gracefully out of the case!

The issue may not even be a conflict of more or less consciously opposing standards between parent and child, although often it is, especially among older children. With younger children it may be a matter of behavior on the part of the child which is socially undesirable by anybody's standards. But this behavior may result from improper management on the part of the parents. All too often the parent shows no disposition to alter his pattern of dealing with the child, and the child remains the patient of the psychiatrist only as long as the psychiatrist forbears from hinting that it is the parent rather than the child who should initiate the desirable changes.

Another problem which tends to make captive the psychiatrist is that of the alcoholic. The alcoholic frequently comes to treatment at the insistence of another person. Unwilling or unable to give up drinking – and I will not embark here on a discussion of freedom of the will – he stalls for time by promising to visit the psychiatrist – cheap evidence of good intentions, indeed, especially since the alcoholic so rarely is financially reliable in paying for his treatment! The drinking continues to constitute the bone of contention between the alcoholic and the other person who is so unfortunate as to be involved with him. Imperceptibly, the responsibility for the drinking comes to be laid at the door of the psychiatrist. If the alcoholic continues drinking, obviously the psychiatrist failed to do him any good; or if he stops for a time, any lapse is obviously the product of a blunder of the psychiatrist. The psychiatrist is speedily taken captive as a cover-up and scapegoat for the alcoholic as a defense against the demands of the other person that the alcoholic cease to drink. How sincere this other person is in these demands is, of course, another question; Eric Berne goes into the matter very refreshingly in his description of the game of Alcoholic ("Games

People Play"). But lack of sincerity on the part of this other does not relieve the psychatrist of his role of patsy or captive, as I call him; it may merely mean that the psychiatrist is being used as scapegoat by two instead of one party to the original conflict.

Marital problems have also been snares for the unwary psychiatrist. Some psychiatrists avoid them by insisting on seeing in treatment only one of a couple. But if the psychiatrist refuses to see the other member of the marital unteam, he may be accused of willfully maintaining ignorance as to the state of affairs; if he sees both, he may be accused of partisanship. It is traditional that marital partners duel with each other, only to unite against a third party who attempts to mediate, as well-intentioned protectors of the wronged and would-be peacemakers have found to their cost. As my friend Dr. Alfred Axtmayer, a surgeon endowed with psychiatric insight, puts it in this connection: "Two against one is not fair".

If the psychiatrist has always been in danger of falling captive to people, and to problems, to these must now be added a new hazard, programs. Programs of governmental agencies have assumed a role of increasing importance in recent years, and probably, because of the more limited base of private practice here, of relatively greater importance to the psychiatrist in Puerto Rico than in the continental United States.

I refer to such programs as that of Vocational Rehabilitation, which has recently expanded in an attempt to enable various more or less handicapped members of the community to earn their own living. In reality, Vocational Rehabilitation is a misnomer in this regard, for many of the objects of the efforts of this agency are in need, not of rehabilitation, but of habilitation. Rehabilitation implies that they were once productive members of society who have somehow fallen by the wayside, as a result of illness or injury no doubt, and require reestablishment in their own and the community's existence. Such is, however, frequently not the case. In many instances the object of the attentions of Vocational Rehabilitation have never been adequately functioning members of the community. Many of these cases are sent to the psychiatrist with a view to treatment. In particular they are sent to the psychiatrist because they present various physical complaints for which no organic basis is found. The psychiatrist is to examine them, make a diagnosis, and prepare to treat them. The old unspoken but widely held presumption, which survived because of the shortage of psychiatrists and the shortage of funds to pay them, that if we only had enough psychiatric hours available we could cure everybody, now for the first time comes up against the test of reality. To what extent are these cases psychiatrically treatable?

I have with me the referral sheet of one such patient. I have not seen her for her appointment is later this month. According to her protocol, she is 42 years old; her usual occupation is stated non-committally as "none at present"; whether she ever held a job is not stated. Last time hospitalized is "none lately." Last visit to a physician is also "none lately". Her symptoms are listed as "multiple psycho-somatic complaints: several vaginal operations, abdominal hysterectomy; abdominal pains, constipation; frequent nasal colds, sinusitis, etc. Has difficulty with her husband apparently because of constant complaints. Unemployed; says she would like to work for a living." Her physical findings include a "partial upper plate" and a "mid-line infra-umbilical scar of laparotomy." As her major disability is listed "No definite organic pathology; psychoneurotic terrain, probably anxiety reaction." To the question, "can major disability be removed by treatment," the examining physician optimistically replied, "yes".

Can one understand why, after over twenty-five years of working in psychiatry, I anticipate with trepidation seeing this patient? Indeed, I am already a captive - not of this patient who may, indeed, be quite other than I anticipate here. I speak with the full awareness of the danger of preconception in regard to patients. This, indeed, is the greatest trap of all, and whatever conditions in which one works one must guard against routine habits of thought.

But I am already a captive of something else. I am a captive of the unduly optimistic expectations of the referring physician, who undoubtedly has grown up in medicine after World War II among the exaggerated claims of psychiatry. I am a captive of these exaggerated claims. I am a captive of misconceptions in medicine that fail to take into consideration that when you change the premises under which psychiatric treatment is effected you likewise change the results.

Note first the terms our referring physician uses. He speaks of "multiple psycho-somatic complaints", but he lists "abdominal pains, constipation; frequent nasal colds, sinusitis, etc." The patient's complaints are somatic enough; it was the judgment of the doctor as to the essential nature of these complaints that led him to add the "psycho" in the "psycho-somatic." This is his way of expressing his conclusion that there

is nothing wrong with her organs but a great deal wrong with her way of reacting. Almost certainly he is correct.

Fifty years ago, however, he would not have said "psycho-somatic", although he might have called her a neurasthenic. The term psychosomatic came into vogue in the 1930's and 1940's.

The psychosomatic movement in medicine produced a number of books, but probably none was more influential than Weiss and English "Psychosomatic Medicine" (1943). Now if one studies this book, one learns from it that there are a great many patients with physical complaints related to various body systems, whose disorders spring from emotional problems. Sometimes these patients respond to efforts to discuss these problems; very often they do not. The main thrust of the Weiss and English message is clear enough - do not treat these patients as if they had organic disease, above all do not operate on them - we knew that while we still called the patients neurasthenics, but psychosomatics was more sympathetic to the patients and created a bigger splash - but try to understand their underlying emotional problems and *perhaps* you will be able to help them. For Weiss and English, of course, the psychiatric treatment par excellence was psychoanalysis, but they realized that this treatment was not economically or psychiatrically feasible for everybody. But I do not think that ever in their wildest dreams back in those days around 1943 would they have dared glibly to characterize the long-standing somatic complaints of an apparently healthy but hypochondriacal 42-year old woman as removable by treatment! The results they describe in their book by no means justify such a sanguine prognosis. In many cases, indeed, understanding on the part of the doctor did little good for the patient.

Let us take another look at our protocol. Our lady is unemployed at 42. Her educational attainments and preparation for employment are not mentioned. Moreover, it is left unclear on what basis the woman came to the physician. Was she seeking a job, or an excuse not to have one? This is extremely important in establishing whether there is motivation for treatment, yet it is not always easy to determine. Did she go to Vocational Rehabilitation because she was seeking relief for her symptoms - as Weiss and English's patients went to them - or did she go to Vocational Rehabilitation in quest of assistance of another kind? Can one compare patients that go to an agency like Vocational Rehabilitation with patients that go to Temple University Hospital, for example? Will both groups respond to similar treatment? Are they comparable? Were our lady's somatic complaints simply elicited in response to questioning her with a view to her employability? How productive are her complaints of suffering? Are they merely afterthoughts to justify her unemployment to date? The comparative triviality of some of them - constipation, frequent nasal colds - might suggest the latter hypothesis.

At least Weiss and English generally had patients presenting themselves because of their own sufferings, sufferings which were reasonably significant as such, at least significant enough to go to a doctor. Here we have a patient referred by an agency, so that the relevant issues - above all, motivation for treatment - are drastically obscured. Many of these agency patients are themselves captive patients who feel they must come for treatment because the authorities have sent them. Yet they understandably are reticent about making this clear to the physician. I frequently ask agency patients whether they wish psychiatric treatment, but not even this is satisfactory because they apparently often feel constrained to answer yes, one suspects, again, because of the agency or perhaps because they believe it will please the psychiatrist. When the patient is a captive patient, the psychiatrist, ironically and dialectically, becomes a captive psychiatrist!

In cases treated by agreement with agencies, and at the cost of the agency, the psychiatrist feels that he must take an obligation in advance. He is treating the patient for someone else. This situation relieves the patient from responsibility for his treatment; he is exempt from financial or any other obligation. On the other hand, the psychiatrist is obligated to the third party who is underwriting the treatment. This new arrangement doubly changes the premises on which private psychotherapeutic efforts were based, and in both ways unfavorably.

Hence a new source of entrapment for the psychiatrist has come into existence - the program. Meeting the new possibilities offered by these programs and yet avoiding agency-patient entrapment is a problem the psychiatrist will have to learn to solve.

¿HACIA DONDE VAMOS?

Martín A. Iguina Mora, MD

Esta noche vivirá inolvidable para siempre en mis recuerdos. Marca el final de la gestión presidencial que me dió el privilegio y el honor de dirigir los destinos de nuestra institución, durante una época de transición repleta de cambios, incertidumbre médico-social y de logros.

Este año, el "Año de los Logros", como le llamamos en su comienzo, se caracterizó por nuevos enfoques y cambios recomendados por nuestra Asociación, en cuanto al método de la prestación de los servicios médico-hospitalarios en Puerto Rico. Se trató de eliminar por todos los medios a nuestro alcance, la desigualdad que existe en nuestra patria en los sistemas de salud, donde aún se mantienen dos sistemas: uno gubernamental para los médicamente necesitados y economicamente indigentes y uno privado o de la comunidad para los médicamente necesitados pero economicamente solventes.

Siempre conscientes de la desigualdad existente, la Asociación Médica de Puerto Rico recomendó a nuestra legislatura llevar a la práctica y a la realidad, por proyectos legislativos que en este año se han convertido en ley, nuestro propósito de lograr que cada puertorriqueño reciba como Hijo de Dios, la más alta calidad de servicios médicos hospitalarios, independientemente de su condición social, condición económica, raza, o creencias políticas y religiosas.

Todos los médicos puertorriqueños debemos reconocer la necesidad de practicar lo predicado: todo ser humano tiene el derecho de recibir los servicios médico-hospitalarios de la más alta calidad sin discrimen de clase alguna.

Al aprobarse en este año por recomendación de la Asociación Médica, legislación de avanzada social, reconocieron los médicos y los legisladores la obligación moral y cristiana de prestar mejores servicios, y de la mejor calidad, con invariable consideración al paciente como miembro de una familia, como miembro de una sociedad, y como miembro de una comunidad.

Nuestro pueblo, consciente de los avances de la ciencia y la técnica, reclama exigente nuevas estructuras y nueva planificación de los medios existentes para resolver sus problemas.

El progreso excepcional alcanzado por nuestro pueblo durante los últimos treinta años y necesidades recién surgidas, ha forzado la búsqueda de nuevas soluciones y nuevos enfoques destinados a combatir los ataques de las enfermedades en la ciudadanía, proporcionando servicios que protejan, restauren o promuevan la salud física, la salud mental, y la salud espiritual reteniendo al máximo la capacidad productora de nuestros conciudadanos.

Estos servicios brindados al pueblo de Puerto Rico deben ser acompañados por la aplicación de los mejores medios de medicina preventiva, diagnóstico precoz de las enfermedades, medicina curativa y manejo de las incapacidades para la rehabilitación del enfermo.

El éxito de esta gestión, el logro de todo lo anhelado para nuestro pueblo, depende de la superación de cualquier obstáculo que pueda surgir y de la integración de los servicios para que su calidad sea la mejor y accesible a toda la comunidad, reservando por encima de todo el concepto de la libre selección de los proveedores de los servicios de salud.

Los médicos puertorriqueños, a través de su historia, y a través de la Asociación Médica de Puerto Rico, hemos luchado repetidamente por esos cambios de avanzada social, por esos cambios de justicia social médica para todos los pacientes por igual.

En este momento histórico tenemos que determinar dónde es más útil nuestro liderato para obtener el mayor bien para el paciente y el mayor beneficio para nuestro pueblo.

El sendero que recorrerá la política pública en cuanto a la prestación de los servicios médico-hospitalarios a los pacientes, dependerá en gran medida, de la orientación que los médicos y que nuestra

---

Discurso presidencial pronunciado el 4 de noviembre de 1969 durante la Sesión Inaugural de la Sexagésima Séptima Asamblea Anual de la AMPR - Hotel San Juan, San Juan, Puerto Rico.

Asociación le pueda brindar al gobierno y al pueblo de Puerto Rico.

En la problemática de salud de Puerto Rico, el médico es el dirigente natural y el capitán del equipo de la salud. Consideramos obligación y responsabilidad ineludible de todos los médicos estar atentos a los acontecimientos, participantes de actitud positiva, portadores de ideas constructivas, flexibles, a tono con la necesidad socio-económica del país. Tales ideas de avanzada social, soluciones puertorriqueñas a los problemas puertorriqueños de los servicios de salud, beneficiarán única y exclusivamente al pueblo de Puerto Rico, a nuestro pueblo. Esa es nuestra responsabilidad y nuestra obligación, las cuales enfrentaremos para beneficio de todos los pacientes.

Es real y urgente la necesidad de unir la medicina para integrarla científicamente a través de programas de salud planificados a corto y a largo plazo para nuestra población en crecimiento rápido, la cual exige este servicio como un derecho ineludible.

El goce del grado máximo de salud posible es uno de los derechos fundamentales de todo ser humano. Estimamos la salud como componente esencial del desarrollo, reflejo del crecimiento económico y base de los cambios estructurales destinados a mejorar el bienestar de las personas. Sobre ella descansa el progreso de un pueblo. Es deber del equipo de la salud dirigido por el médico, mantener a ese pueblo fuerte y saludable. Un pueblo saludable marchará confiado en la ejecución de cualquier programa de acción hacia el logro de sus metas e ideales. Un pueblo sin salud es un pueblo impotente, desvalido, que nunca podrá ponerse en marcha hacia la consecución de su gran civilización.

En otras palabras, representa la salud de un pueblo su tesoro más preciado.

Para obtener ese bienestar, la integración de los servicios de salud juega un papel importante y debe ir dirigida a lograr un completo bienestar físico, mental, social y espiritual, aplicando factores de prevención, curación y rehabilitación.

La función del médico, y de los otros miembros del equipo de la salud, no pueden realizarse por separado. Tienen que llevarse a cabo dentro del cuadro social en el cual la estructura económica, el nivel de vida de la sociedad y las exigencias de los servicios, son factores determinantes. Es necesario formar una unidad entre lo que el pueblo desea y tiene derecho y lo que aconsejan los asesores en los problemas médico-hospitalarios, y lo que nosotros los médicos y el resto de la familia para-médica aconseja, de tal forma que pueda planearse en una forma efectiva, la forma de atacar y resolver los distintos problemas.

La profesión médica del país tiene que tomar parte activa en estos nuevos enfoques hacia los problemas de salud, formando el centro alrededor del cual se provean los servicios médicos. El pueblo de Puerto Rico necesita nuestra orientación en los problemas de salud y debemos ofrecer nuestra cooperación, nuestros conocimientos y nuestra participación activa en todo lo relacionado a la problemática médico-hospitalaria de nuestro país. Consideremos detenidamente *HACIA DONDE VAMOS* y qué papel jugaremos en el futuro del siempre cambiante terreno de la práctica de la medicina. Los métodos y actitudes del pasado ya son inadecuados para enfrentarnos al presente. Y los métodos utilizados al presente, serán inadecuados y antiguos para enfrentarnos a los problemas del futuro. Tendremos que ir adaptando nuestros métodos y actitudes a las distintas situaciones que se presenten sin olvidar que somos el elemento fundamental de los servicios, y nuestra voz debe ser voz de liderato, ya que si no se oye así habrá quien esté dispuesto a usurpar ese liderato médico, y trazarnos pautas detrimentes para los mejores intereses del pueblo de Puerto Rico. Sin la sincera y eficiente colaboración de la profesión médica no puede esperarse una organización operante de los servicios de salud.

La responsabilidad del médico rebasa la relación médico-paciente, y le exige ser participante activo en la organización y planificación de los programas de salud, para que éstos sean amplios, contínuos, abarcadores y coordinados. Esa es la verdadera relación médico-comunidad, atenta al desarrollo de los programas de salud en forma flexible y positiva a tono con nuestras realidades socio-económicas del presente y del futuro dirigidas al desarrollo de todo el potencial humano existente en el campo de la salud.

He señalado lo que considero el deber, y la obligación de los médicos hacia la promoción de una mejor salud para el pueblo de Puerto Rico. Combatiremos, no solo las enfermedades y los problemas propios de la salud del pueblo, sino también lucharemos contra cualquier intento legislativo nocivo a los intereses de nuestros pacientes. En este esfuerzo, la Asociación Médica de Puerto Rico no cederá. Rehusaremos descansar mientras exista desigualdad en los servicios médico-hospitalarios del país. Los médicos puertorriqueños movilizaremos el valor y la energía necesaria para vencer los obstáculos interpuestos en nuestra búsqueda de soluciones puertorriqueñas a nuestros problemas de salud. En esta intención nos ampara la verdad

y autenticidad de nuestros postulados.

Las horas van marcando en el reloj de arena los días pasados velozmente en el camino recorrido en nuestra efímera existencia. Ha transcurrido un año desde que ustedes me honraron al elegirme Presidente de nuestra Asociación. Hoy ha llegado el momento de la despedida. Servirle a mi Asociación, a mis compañeros, a mi profesión y a mi patria me ha proporcionado una gran felicidad. Nunca olvidaré esta oportunidad y créanme que los llevaré muy hondo en el corazón.

Cinco cosas deseo aconsejarles que a mi juicio lo abarcan todo:

Primero, poner toda nuestra Fe en Dios, quien es guía y luz de la humanidad entera; Segundo, buscar la más estrecha unión entre todos, recordando aquellas palabras de Cristo *AMAOS LOS UNOS A LOS OTROS;* Tercero, defender con todas las fuerzas la pureza de nuestra Profesión; Cuarto, continuar nuestra lucha con más ahinco en la búsqueda de soluciones justas para los problemas de salud de nuestro país; y Quinto, no permitir bajo ninguna circunstancia, que la política partidista permee la Asociación Médica.

Y ahora para terminar, estoy a las órdenes del nuevo Presidente, de la nueva Junta de Directores, y de cada uno de ustedes que en todo momento me brindaron atención y cortesía.

Dios permita que los días por venir sean días de éxito, de progreso y de enaltecimiento para nuestra Asociación. Que el sol brille a lo largo del camino que habremos de recorrer en pos de una mejor calidad de servicios lograda a través de libre selección del médico, que proporcione fe y confianza para todos los pacientes por igual independientemente de las condiciones sociales, económicas, raza, creencias religiosas o políticas, en beneficio de la salud, el bienestar y la prosperidad de este grande y noble pueblo de Puerto Rico, que todos queremos tanto.

Muchas gracias.

NON-UNION OF FRACTURES OF THE FOREARM IN ADULTS, PREVENTION AND TREATMENT

E. Blas Ferraiouli, MD, FACS, DABS

Fracture of the shaft of one or both bones of the forearm is not very common in the adult. In spite of the infrequency of the problem, several methods of therapy are advocated. Satisfactory results are usually obtained by closed reduction in the majority of indisplaced or slightly displaced fractures of the radius and ulna. In displaced or badly comminuted fractures, however, a satisfactory reduction is difficult to obtain; and if obtained, it cannot be maintained after the swelling subsides and the cast becomes loose. In such cases open reduction and internal fixation is necessary. It is a well-known fact that open reduction frequently leads to a prolongation of healing time and has a greater likelihood of producing complications, and this may account at times for the tendency to be too conservative in the application of an open procedure (1, 2, 3).

In order to define the results obtained by open and closed reduction, a series of cases of fracture of the shaft of one or both bones of the forearm from the San Juan Veterans Hospital and the Puerto Rico State Insurance Fund from 1950 to 1968 were reviewed.

Material and Methods

One hundred and sixty-six cases were available for study (Tables I and II). Sixty six involved both the radius and ulna. Forty-five involved the ulna and 55 cases the radius. A total of 103 fractures or (62.05 percent) were treated by open reduction and internal fixation with medullary nails (Rush pins) and plates, and sixty-three or (37.95 percent) by closed reduction.

Grafting Technic:

The fractures are exposed thru separate incisions. The fragments are realigned and all fibrous tissue is excised to permit as close apposition as possible. The marrow cavities are reamed and the bone bed shaved until bleeding is observed. Alignment is maintained with intramedullary nails or plates of adequate lengths. The graft obtained from the ilium is shaved of all soft tissues and placed across the fracture line. The onlay graft is fitted and clamped to permit precise drill holes. The clamp should not be removed until the two screws are secured in place. The bone defect or gap is packed with cancellous bone chips. A long arm cast is placed from mid arm to the metacarpophalangeal joints with the elbow flexed at 90°, the forearm supinated if the fracture is in the proximal half and the forearm in neutral position if the fracture involves the distal half. The cast is changed the second week when all the swelling has disappeared and a similar cast is applied. At the end of eight weeks the cast is removed and X-rays taken in anteroposterior, lateral and oblique views. The cast is again replaced and removed out the 12th. week. New X-rays are taken. If there is apparent clinical union, the arm is placed in a sling and only flexion of the elbow is permitted for a month, then active and passive pronation and supination of the forearm is permitted. As expected,

TABLE I

Fractures	Radius	Ulna	Radius-Ulna
Simple	38	31	40
Compound	17	14	26
Total	55	45	66

TABLE II

Open Reduction	Radius	Ulna	Radius-Ulna
Simple	28	13	22
Compound	16	6	18
Total 62.05 percent	44	19	40
Closed Reduction			
Simple	10	18	18
Compound	1	8	8
Total 37.95 percent	11	26	26

From the Surgical Services, San Juan Veterans Administration Hospital and the Puerto Rico State Insurance Fund, San Juan, P. R.

good clinical union is evident by the sixth month.

Incidence of Non-Union

In a total of 166 cases (Table III), there were 7 cases of non-union of the radius, 8 cases of non-union of the ulna and 13 cases of the non-union involving both bones of the forearm, equivalent to 16.8 percent. All cases healed with satisfactory alignment and function.

TABLE III

Fractures	No.	Bone Graft - for Non-Union	Percent
Radius	55	7	12.7
Ulna	45	8	17.9
Radius-Ulna	66	13	19.8
Total	166	28	16.8



Fig. 1: *Closed reduction unsatisfactory. Unstable fracture of forearm.*



Fig. 2: *Same patient as Fig. 1. Open reduction. Adequate nailing and alignment.*



Fig. 3: *Badly comminuted compound fractures of the forearm.*



Fig. 4: *Same patient as Fig. 3. Open reduction and adequate nailing. Non-union of ulna eight months after surgery.*



Fig. 5: *Resection of head of radius with nailing of both bones and subsequent non-union 8 months after surgery.*



Fig. 6: *Same patient as Fig. 5. Solid bone union after bone grafting 16 months after surgery.*



Fig. 7: *Open reduction. Poor result due to inadequate fixation.*

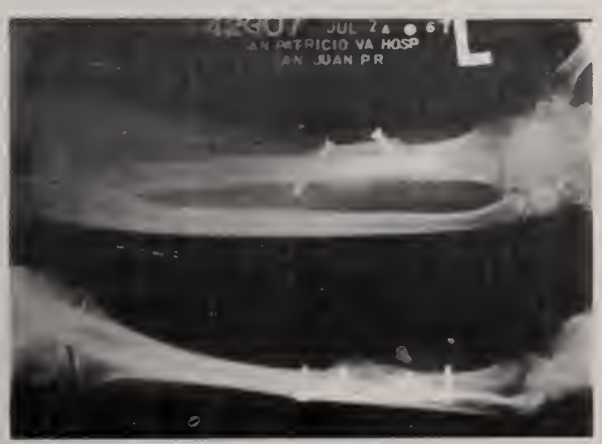


Fig. 8: *Same patient as Fig. 7. Solid union. Bone plating and onlay bone graft six months after surgery.*

Discussion

In the open treatment of fracture of the forearm, good functional results are usually obtained if the following rules are observed:

1. Anatomic reduction is necessary to normal function.
2. Rigid internal fixation is necessary to maintain anatomic reduction.
3. Comminuted fractures should be fixed internally as rigidly as possible *without depriving the fragments of the periosteal attachment.*
4. Primary bone-grafts provide added assurance for union in cases of delayed open reduction.
5. Supplemental external protection by plaster casts in correct anatomical position until sound clinical union takes place.
6. Expert technical implementation of all steps of treatment.

In spite of strict adherence to the above principles, non-union may be expected in a certain percentage of cases. This will vary directly with the type and severity of the fracture and the amount of soft tissue damage.

Successful repair of a non-united fracture in the forearm requires bone grafting in order to achieve good functional results. In addition, rigid internal fixation supplemented by external fixation until clinical union occurs is necessary. Numerous bone grafting techniques have been recommended (4, 5).

The procedure described and used in the cases presented (Table III), for all non-union, is a technique which, when mechanically applicable and carried out with gentle precision, is usually successful. The cortical bone grafts and cancellous bone chips used are obtained from the iliac crests.

When a pseudoarthrosis is present appropriate management is essential to the successful repair of non-union. When it is loose or accompanies a bony deformity, it should be excised completely and the bone ends realigned to permit adequate apposition.

When the non-united fragments of both radius and ulna are involved and are already in satisfactory position and alignment, it is advisable to leave the pseudoathrosis in place because of the additional fixation it provides.

Excision of the pseudoarthrosis and revision of a non-union in the radius alone should be preceded by subperiosteal resection of 2 cm of the distal end of the intact ulna.

Summary

A summary of the therapeutic principles most important to the prevention and repair of non-union of fractures of the forearm in the adult has been outlined. Rigid internal fixation, supplemented by external immobilization until clinical union occurs is mandatory to the repair of a bone grafted non-union. The technique described and used in 28 cases with good functional results is strongly recommended.

Resumen

Se describe nuestra experiencia en el tratamiento de fracturas del antebrazo. Se resumen los principios quirúrgicos a seguirse para evitar y para reparar la mala unión en estas fracturas. Se requiere fijación interna suplementada por inmovilización externa en los casos en que se llevan a cabo injertos de hueso. La técnica descrita ha dado resultados funcionales satisfactorios en 28 casos.

References

1. *Adler, J. B., Doherty, J. H., Skudder, P. A.:* Adult forearm fractures: Principles of management. J. Trauma 5: 319, 1965.
2. *Green, E. W., Aichner, H.:* A successful method of treating unstable forearm fractures in adults. Closed intramedullary Kirscner wiring and external plaster fixation. J. Trauma 5: 709, 1965.
3. *Anderson, L. D.:* Compressure plate fixation and effect of different types of internal fixation on fracture healing and bone joint surgery, 1965, 191.
4. *McLaughlin, H. L., Gaston, S. R., New, C. S., and Craig, H.:* Open reduction and internal fixation of fracture of the long bones. J. Bone Joint Surg. 31: 941, 1964.
5. *Murray, Clay R.:* The detailed operative technique for open reduction and internal fixation of fractures of the long bones. J. Bone Joint Surg. 26: 307, 1944.

POSTOPERATIVE INFECTION IN DOGS

E. A. Santiago Delpín, MD
G. Ramírez Schon, MD
P. Rodríguez Millán, MD
F. E. Oliveras, MD
V. Pérez Cintrón, MT

Clostridia live in the dog's liver under physiologic conditions and only cause typical gas gangrene infection when the hepatic artery is ligated (5). Sterilization of the bowel has no effect on this occurrence, since they live there as comensals, and does not result from continuous seeding from the G. I. tract (1).

This fact has influenced some in our staff to assume that the dog has a physiologic systemic bacteremia, a fact that has not been substantiated by peripheral blood cultures.

This assumption induced gross breaks in surgical technique in the Experimental Surgery Laboratory during the months of September and October. An alarmingly high incidence of postoperative infection occurred in the dogs operated for long term survival during this period. A controlled study was undertaken to elucidate etiologic factors and define means of prevention.

Materials and Methods

From the second week of November 1968 on, observations were made as to the technique of preparing and handling the experimental animals and the operative field. They were found to be improper as far as sterility was concerned. A short check list was prepared and discussed with the medical and paramedical personnel (Table I).

Throat cultures were taken from all the personnel. The standard swab technique was used, and they were immediately implanted in blood agar media.

Cultures were taken from the equipment used during the procedures: tables, electronic equipment, gloves, lamps, etc., as well as from the sterile bundles. Similarly, cultures were taken from the floor and walls of randomly picked animal cages. All these cultures were also taken by the standard swab technique and immediately immersed in liquid thyoglycholate medium*.

Swab cultures were taken from the secretions of wound abscesses of infected dogs. All samples were adequately labeled, and sent for culture to the Bacteriology Laboratory. Antibiotic sensitivity was done on the pathogenic strains found in the throat and wound cultures.

After this initial sampling, the aseptic technique method was enforced, all cages were not only washed daily with running tap-water, but also scrubbed twice weekly with a disinfectant**. Long term survivors operated in the November-December study-period were observed for evidence of wound infection or sepsis, and mortality was noted.

Routinely, 600,000 Units of a long acting benzathine penicillin injection was administered prophylactically postoperatively in both groups.

TABLE I: MINIMAL SURGICAL TECHNIQUE

1. The shaving must be thorough and must extend beyond the operative field at least 2-3 inches in adult dogs.
2. Generous scrub for at least 5 minutes with antibiotic soap.
3. Application of disinfectant.
4. Draping with sterile towels and sheets.
5. All instruments, drapes and sutures must be sterilized, and handled as such.
6. Electrical and monitoring equipment which is not sterile must be positioned outside the operative field.
7. All operators will wear clean scrub suits and sterile gloves.
8. Gloves must be sterilized in a sealed envelope.

From the Department of Surgery, University of Puerto Rico School of Medicine, San Juan, Puerto Rico.

Supported by The General Research Support Grant of the University of Puerto Rico.

** - Provided by the Central Laboratory of the Puerto Rico Medical Center.*

*** - Benzyl Chlorphenate "Sani-Dril", Davis & Geck.*

Results

Culture of pharyngeal swabs disclosed gram positive non-pathogenic as well as pathogenic cocci, and one bacillary form. The relative frequencies are shown in Table II. Sensitivity to different antibiotics was carried out in staphylococcus aureus and pneumococcus and found to be sensitive or slightly sensitive to penicillin.

Cultures from the wound abscesses yielded mixed cultures, with predominance of gram-negative bacillary pathogens of the fecal group. Only two cultures showed staphylococcus aureus and these were sensitive to penicillin. Sensitivity *in vitro* showed that Kanamycin and Neomycin were the most efficient, whereas penicillin, which had been administered routinely post-operatively, was effective (Table III) against the infecting organisms in only 40 percent of animals.

The swabs from the equipment showed only common contaminants in unsterile items, whereas the sterility of the autoclaved bundles was confirmed.

There was a varied number of microorganisms cultured from the animal cages. Among them, several were considered to be pathogenic, including *E. Coli*, *P. vulgaris*, *K. aerobacter*, *P. aerogenosa*, *S. aureus*, paracolon bacilli, and clostridium species. The individual data and relative frequencies of each are tabulated in Table IV. With a Student t-test, there was found to be no significant difference between the frequency of pathogens before and after the institution of disinfectant scrub of cages.

Finally, the actual incidence of post-operative wound infections was analyzed. There was a sharp decrease in incidence of infection after the institution of aseptic technique as shown in Table V, and the difference was statistically significant to $P \leqslant 0.005$ by a non-parametric test utilizing a X^2 distribution.

TABLE II: PREDOMINANT ORGANISMS ON THROAT CULTURE

Organisms	Personnel with Positive Culture
α hemolytic streptococcus	84 percent
Neisseria sp.	60
Staphylococcus aureus coagulase positive	33
Staphylococcus epidermidis	33
Streptococcus, nonhemolytic	25
β hemolytic *streptococcus*	16
Pneumococcus	8
Bacillis subtilis	8

TABLE III: EFFECTIVENESS OF ANTIBIOTICS AGAINST ORGANISMS INFECTING WOUNDS

Antibiotic	Percent of Sensitive Organisms in all Wound Infections
Kanamycin	100 percent
Neomycin	100
Chloromycetin	80
Streptomycin	80
Tetracycline	80
Colymycin	75
Penicillin	40
Ampicillin	40

Discussion

An unexpected high incidence of asymptomatic staphylococcal carriers was found in the group (6). This can be easily explained on the basis of the continuous close-contact of the members of the staff with the surgical wards.

Gram-negative bacilli were the most frequent organisms cultured from infected wounds, though other organisms were present also. Possibly the previous use of penicillin was the factor which eliminated gram positive infection. Most of the infecting organisms were sensitive to Kanamycin. The use of penicillin in both groups shows the futility of using antibiotics postoperatively in the prevention of wound infection (4). If infection is to occur, it will occur with the resistant organism.

Theoretically, the source of infection may be defective preoperative preparations, faulty technique during the operation, or post-operative contamination. Standard operative trauma may be assumed since the same surgeons were performing similar operations. Host factors are also similar since dogs were obtained from the same source and had similar preoperative handling and nutrition.

Our results show that there was a highly significant change in the incidence of post-operative infection and in mortality from sepsis. The variables changed were the intraoperative aseptic technique and an attempted change in the postoperative bacterial environment. Since the postoperative bacterial environment did not change significantly as far as pathogenic flora is concerned, and since there was no relation between the pharyngeal flora in the staff and wound infection, we can infer with considerable degree of confidence that the change in infection rate corresponded to a

TABLE IV: FREQUENCY OF PATHOGENIC ORGANISMS IN CAGES

Bacterium	Before Disinfectant	After Disinfectant
E. Coli	11	8
Proteus vulgaris	8	6
Klebsiella aerobacter	6	6
Pseudomonas aerugenosa	4	1
Staphylococcus aureus	0	4
Paracolon	3	8
Clostridium sp.	5	2
α hemolytic streptococcus	10	6
Average	5.9	5.1
Number	8	8
Variance	13.55	6.70

$t = 0.5031$ Ho: There is no difference
Region of rejection $t_{0.05}$ 1.761
on a one tailed test

TABLE V: NONPARAMETRIC X^2 TEST TO FIND RELATIONSHIP BETWEEN TREATMENT AND INFECTION

A. Observed Frequency:

	Infected	Not Iufected	Totals
No Sterile Technique	7	1	8
Sterile Technique	1	14	15
Totals	8	15	23

B. Calculation of X^2:

	fo	fc	$(\lvert fo - fc \rvert - 1/2)^2 / fc$
	7	2.78	6.403
	1	5.22	3.410
	1	5.22	3.410
	14	9.78	1.820
Sum	23	23.00	$X^2 = 15.043$

Ho: Infection and technique are not related
Region of rejection X^2 0.005 7.88

NOTE: fo = observed frequency
fc = calculated frequency

change in operative aseptic technique.

Furthermore, it may also be inferred that the source of infection is not the housing system, since the same contamination continued in spite of the use of a disinfectant and therefore did not vary in either group. In spite of evidence to the contrary (2, 3) we have to conclude that postoperative contamination of a closed wound is not an important factor in the production of wound infection.

Summary

A brief analysis of post-operative wound infections in dogs was made at the Experimental Surgery Laboratory of the University District Hospital.

A highly significant inverse relationship was found between the infection rate, and the enforcement of a minimal aseptic technique during the operation. The use of the latter is recommended in chronic preparations.

Contamination of the wound had no relation to the organisms found in the pharyngeal cultures of personnel.

Washing animal cages with an antiseptic solution did not vary the degree of contamination in these areas. Postoperative contamination was not a factor in the observed difference in wound infections of primarily closed wounds.

The value of the prophylactic use of antibiotics post-operatively is questioned.

Resumen

La presunción de que el perro tiene una bacteremia sistémica fisiológica no tiene base científica y la evidencia que existe indica lo contrario. Por esta razón el uso de técnica aséptica en el laboratorio de cirugía experimental está indicado.

Se llevó a cabo un análisis de las infecciones postoperatorias en las heridas de los perros, con y sin técnica aséptica. Los resultados indicaron que había una relación altamente significativa entre la contaminación intraoperatoria y la incidencia de infecciones de herida.

No se vió relación entre los organismos cultivados de la faringe del personal y los que contaminaban las heridas. El uso de un antiséptico al lavar las jaulas de los animales no afectó el grado de contaminación en estos artefactos, y por lo tanto no

se puede inferir relación alguna entre la contaminación postoperatoria y la incidencia de infección de herida.

References

1. *Chan, A. Y. S., Goldbloom, V. C., and Gurd, F. N.:* Clostridial infection as a cause of death after ligation of the hepatic artery. Arch. Surg. 63: 390, 1951.
2. *Du Mortier, J. J.:* The resistance of healing wounds to infection. Surg. Gynec. & Obst. 56: 762, 1933.
3. *Dunphy, J. E., and Jackson, D. S.:* Practical applications of experimental studies in the care of the primarily closed wound. Amer. J. Surg. 104: 273, 1962.
4. *Howard, F., and Du Val, M. K.:* The complications of surgical wounds. Amer. Surg. 26: 781, 1960.
5. *Markowitz, J., Rappaport, A., and Scott, A. C.:* The function of the hepatic artery in the dog. Amer. J. Digest Dis. 16: 344, 1949.
6. *Whipple, H. E., (*ed.): The staphylococci: Ecologic perspectives. Ann. New York Acad. Sc. 128: 1, 1965.

EDITORIAL

DIALOGO Y ACCION

Al asumir la presidencia de la Asociación Médica de Puerto Rico, tengo consciencia plena de la gran responsabilidad del puesto, y de la labor que me espera en el transcurso de los próximos doce meses.

Las figuras de los que con tanto acierto y aplomo me han precedido en este honroso cargo completaron una labor titánica, enfrentándose a distintos problemas de salud de nuestro pueblo de acuerdo con las realidades socio-económicas del país. Estas figuras presidenciales llevaron esta asociación adelante, y yo me comprometo con ustedes en continuar esta trayectoria exitosa ya comenzada por la Asociación Médica de Puerto Rico.

Significativa es la intranquilidad que caracteriza al médico por buscar los medios con que combatir las enfermedades. Nuestra profesión es una de contínuo estudio: la acumulación de conocimientos para enfrentarnos a los problemas de salud que cambian con tanta rapidez. Mi preocupación se resume en el lema de este año: "Año del Diálogo y Acción". Hoy más que nunca afrontamos la obligación de analizar, comprender y practicar a cabalidad nuestra responsabilidad profesional y social en Puerto Rico, una misión cada vez más importante en nuestra sociedad en contínuo cambio con problemas trascendentales.

Ha llegado ya la revolución en la actitud de la ciudadanía anunciada en la última década. Consecuentemente se agudizan los requerimientos de todas las profesiones, especialmente aquéllas dedicadas a la salud. Nuestra profesión reconoce el cambio dramático de los servicios de salud, de privilegio a derecho, de favor a servicio, o por lo menos el ciudadano promedio exige servicios de primera calidad independientemente de su condición económica. Nuestra profesión tiene que aceptar el reto.

Esta nueva actitud se ha reflejado en muchas fases y en muchos programas iniciados y a veces financiados por el Gobierno. Sin lugar a dudas el más típico es el programa Medicare. El advenimiento de este programa estableció el principio de que las circunstancias económicas y los recursos de cada ciudadano no tienen que limitar en nada su condición de servicios de salud ni en obtener la ayuda profesional que él requiera. Aceptada ya esta premisa, se ha extendido y sigue extendiéndose a otros aspectos de la salud.

El público no espera ya una ayuda parcial en los costos de hospitalización. Ahora reclama el beneficio completo de la técnica y de los procedimientos más modernos al alcance de la ciencia médica, aunque el costo de dichas técnicas y procedimientos sean prohibitivos. Exige la preparación más completa y rigurosa de los médicos. Los programas de servicios de salud que todos respaldamos solucionan en parte estos problemas.

El financiamiento del Gobierno Federal para investigaciones médicas ascendió a $750,000,000 en el año 1964; y a $1,203,000,000 en el 1968. Sin embargo, la comunidad científica peligra ante las rebajas presupuestales anunciadas para los próximos años. Algunos científicos creen que los conocimientos de la medicina en los últimos años sobrepasan todos los que se habían logrado durante todos los años precedentes. Esto es muy significativo y nos hace sentir orgullosos de pertenecer a una profesión que avanza a pasos tan acelerados, pero debemos dar la batalla por el contínuo financiamiento adecuado de nuestros colegas investigadores.

Ustedes se preguntarán: ¿Qué podemos hacer nosotros en Puerto Rico con nuestra limitación territorial y económica? Isla pequeña sin recursos económicos vastos necesita generar en sus médicos, en el médico puertorriqueño – espíritu noble, su ambición de superación sin límites. Tenemos que suplir los recursos para igualarnos a otros países, y esos recursos serán humanos, recursos de civilización y progreso. Médicos bien preparados en estudio contínuo ganarán el respeto y la admiración de sus conciudadanos. Esto lo debemos hacer.

Nuestra Asociación Médica ha librado batallas con más o con menos éxito, y se han obtenido grandes logros en beneficio de la gran masa de ciudadanos por quienes no se legislara en materia de salud. Nuestra Asociación se opuso al intento de admitir a médicos extranjeros no cualificados profesionalmente para practicar la medicina en Puerto Rico. Nuestra Asociación respaldó el establecimiento de una Escuela de Medicina en Puerto Rico cuando otros opinaban lo contrario. Nuestra Asociación acudió al Congreso en Washington a insistir en la libre selección de médicos y hospitales cuando funcionarios locales se oponían a ello. Así podríamos seguir enumerando las luchas que en los últimos quince o veinte años hemos librado y que en su día la historia se encargará de acreditar a nuestro favor.

Afortunadamente la legislación aprobada en este último año favorece parte de nuestras demandas. Creo que ha llegado el momento de que mostremos con acción los beneficios reales de esa legislación aprobada por nuestras gestiones.

Para todos mis compañeros un fuerte abrazo y que Dios nos ilumine y nos ayude a continuar esta ardua e interminable tarea que solo ha de redundar en el beneficio de todos nuestros conciudadanos. Que así nos lo conceda Dios.

Eladio A. Montalvo-Durand, MD
Presidente



DR. ELADIO A. MONTALVO DURAND
Presidente, Asociación Médica de Puerto Rico
1970

NOTA BIOGRAFICA

Nació el Dr. Montalvo Durand en Mayaguez, Puerto Rico, el 15 de septiembre de 1921. Cursó estudios elementales y secundarios en su pueblo natal. En 1944 recibió su Bachillerato en Ciencias en la Universidad de Puerto Rico. Se graduó de Doctor en Medicina de la Universidad Nacional Autónoma de México en agosto de 1950. Hizo su internado en el Hospital de la Capital en el 1950. De 1952 a 1955 sirvió en las Fuerzas Armadas en Japón y Korea. Regresó a Puerto Rico en el 1955 haciendo su residencia en Obstetricia y Ginecología en el Rodríguez Army Hospital. Es miembro de la Cámara de Delegados de la AMPR desde 1966. En 1967 ocupó la Presidencia del Consejo de Salud Pública de la Asociación Médica y en ese mismo año obtuvo el premio "A. H. Robins" al ser designado Médico del Año. En febrero de 1969 ocupó la Presidencia de la Sociedad Médica del Distrito Este y desde noviembre de 1969 es Presidente de la Asociación Médica de Puerto Rico.

NOTICIAS

RESOLUCIONES APROBADAS POR LA CAMARA DE DELEGADOS DURANTE SUS REUNIONES DEL 1 Y 4 DE NOVIEMBRE DE 1969

La Cámara de Delegados celebró su tercera Sesión Ordinaria del año 1969 durante los días 1 y 4 de noviembre en el edificio de la AMPR. Se aprobaron las siguientes resoluciones:

1. Se autorizó a llevar a cabo mensualmente distintas campañas de educación y servicio sobre los temas de: adicción a drogas; enfermedades del corazón; obesidad; seguros médicos prepagados; cáncer; profesiones paramédicas; accidentes de tránsito; gastroenteritis; parasitosis; enfermedades de los ojos; retardación mental; enfermedades venéreas; epilepsia; diabetes; alcoholismo; y tuberculosis.

2. La Cámara se reafirmó en su decisión de que la Asociación Medica en el aspecto político partidista no presta su respaldo ni toma ingerencia en candidaturas ni en partidos políticos. Que ninguno de sus miembros tiene autoridad para erigirse en portavoz político, ni para alegar representación política de clase alguna en nombre de la AMPR.

3. Que se incremente al máximo el servicio médico voluntario en casos de emergencia.

4. Continuar fortaleciendo los lazos de amistad entre la Asociación Médica y el Departamento de Salud, Escuela de Medicina, hospitales, Departamento de Obras Públicas, Defensa Civil, Policía de P. R., clubes profesionales y entidades cívicas; y a la vez, que se ayude y desarrollen proyectos cívicos en beneficio de la comunidad.

5. Solicitar de las autoridades pertinentes a cargo del Proyecto de Ciudad Modelo, incluyan en sus Juntas a representantes de la Asociación Médica.

6. Estudiar todos los aspectos médicos de la planificación de la familia nombrándose un Comité al respecto.

7. Intensificar al máximo la lucha contra los abortos criminales en Puerto Rico.

8. Velar y exigir el fiel cumplimiento de la Ley Núm. 56 de 21 de junio de 1969.

9. Se exhorta a todos los médicos que prescriban tranquilizantes a sus pacientes les adviertan del peligro de guiar automóviles cuando están bajo los efectos de estos medicamentos.

10. Se respalda la Jornada Mundial de la Paz del Papa Paulo VI.

11. Se acuerda hacer una recomendación a través de las autoridades pertinentes, a fin de que los anuncios de licores por radio y TV sean reglamentados.

12. Debido a que entre los nombramientos para la Comisión Conjunta para la Conservación de los Recursos Naturales de Puerto Rico hechos recientemente por el Hon. Gobernador de Puerto Rico no aparece ningún personal médico nombrado, se acordó informar al Hon. Gobernador de Puerto Rico que la AMPR respalda el que el Secretario de Salud sea incluído en dicha Comisión.

13. Se autorizó al Comité de Utilización y Revisión de la AMPR a preparar y ejecutar un Plan de Utilización de Servicios Médicos Hospitalarios que abarque a toda la Isla.

14. Se acordó nombrar un Comité para que estudie todo lo relacionado con la explotación de minas en Puerto Rico.

15. Solicitar de las autoridades pertinentes se revise o se elimine la Ley 493, que regula el ejercicio de la profesión de quiropráctica en Puerto Rico, para que se ajusten a la realidad de la práctica quiropráctica.

16. Se acuerda que la AMPR se manifieste públicamente y reafirme su rechazo a todo acto de violencia que atente contra la seguridad y la libre expresión de nuestro pueblo.

17. Tomar los pasos necesarios para que por lo menos un ascensor en cada uno de los edificios mayores de tres pisos que se construyan, sea lo suficientemente grande para acomodar una camilla de ambulancia; y comunicarse con las agencias e instituciones pertinentes para la implementación de este acuerdo.

JUNTA DE DIRECTORES

Durante la reunión de la Cámara de Delegados celebrada el 4 de noviembre de 1969, resultaron electos los siguientes compañeros para integrar la Junta de Directores durante el 1969-70:

Presidente: *E. A. Montalvo Durand, MD*
Presidente Electo: *Fernando J. Cabrera, MD*
Presidente Saliente: *M. A. Iguina Mora, MD*
Vicepresidente: *Jaime Reteguis, MD*
Vicepresidente: *José Abreu Elías, MD*
Vicepresidente: *Osvaldo Lastra Morales, MD*
Presidente Cámara de Delegados: *César Rosa Febles, MD*
Vicepres. Cámara de Delegados: *José M. Rigau, MD*
Secretario: *Rafael Serra Ramírez, MD*
Tesorero: *Víctor J. Pagán, MD*
Delegado a la AMA: *Carlos Bertrán, MD*
Delegado Alterno a la AMA: *Ovidio Rodríguez, MD*

PROGRAMA DE ACTIVIDADES

A continuación informamos las siguientes actividades que han sido reportadas:

Diciembre

4-7 Convención Anual Sociedad Médica Distrito Sur - Casa del Médico, Ponce.

6 Reunión Sección de Ortopedia y Elección de Nuevos Funcionarios - Casa del Médico, Ponce - *2:30 p.m.*

6 Reunión Junta de Directores AMPR - Casa del Médico, Ponce - *3:00 p.m.*

10 Reunión Sociedad Médica del Distrito Este - AMPR - *7:30 p.m.*

10 Reunión Consejo Servicios Médicos - AMPR - *8:00 p.m.*

10 Reunión Consejo Relaciones Públicas - AMPR - *8:00*

10 Curso Alemán - AMPR - *8:00 p.m.*

11 Reunión Extraordinaria Cooperativa AMPR - AMPR - *6:00 p.m.*

12 Conferencia sobre Cáncer en el Esófago (Jornadas Oncológicas) - AMPR - *8:00 p.m.*

15 Reunión Junta Editora del Boletín - AMPR - *7:00 p.m.*

16 Reunión Directiva AAGP - AMPR - *8:00 p.m.*

16 Parranda Navideña al Hon. Alcalde de la Capital y Señora - Auspiciada por la Sociedad Esposas de Médicos - Casa Alcaldía de la Capital - *7:30 p.m.*

17 Curso de Alemán - AMPR - *8:00 p.m.*

26 Fiesta Navidad Departamento Medicina del Hospital Municipal - AMPR - *8:00 p.m.*

Enero 1970

29-31 Convención Distrito Este - Hotel Caribe Hilton

31-7 Feb. Post Convention Tour

10-15 Convención Pediatría - Hotel San Juan

CURSO DE CIRUGIA DEL OIDO
ENERO 1970

Un curso de Cirugía del Oído será dado por el doctor J. Brown Farrior en Tampa, Florida en enero 26-28, 1970. Este curso será sobre casos clínicos, principios quirúrgicos y técnica quirúrgica (ilustrado con una exhibición científica). El precio será de $150.00. Residentes — $75.00. La inscripción será limitada. Los interesados deberán enviar un depósito de $25.00 a nombre de Southern Foundation OBH, dirección c/o J. Brown Farrior, MD, 509 Bay Street, Tampa, Florida, 33606, USA.

BOLETIN

ASOCIACION MEDICA DE PUERTO RICO

ORGANO OFICIAL

VOL. 61 ENERO A DICIEMBRE DE 1969 NUMS. 1–12

Enero:

Idiopathic thrombocytopenic purpura in children 1
Enrique O. Horta, Norman Maldonado, Pedro J. Santiago, Margarita Cáceres de Costas

Rupture of the interventricular septum after acute myocardial infarction 9
Fernando A. Córdova, Juan R. Monserrate, Elí A. Ramírez, Félix M. Reyes

Sweat electrolyte concentrations in Puerto Rican children 17
T. Lawrence Fleisher, A. del C. González Lebrón

Intrauterine contraception with the Saf-T-Coil 33.S® 21
J. Blanco Herrera, A. Hernández Torres

Informe del Presidente 25
J. Alvarez de Choudens

Hypotonic duodenography: Case Report 35
José A. Berlingeri, Laszlo Ehrlich

Impacto de la desnutrición del niño pre-escolar en la economía de Puerto Rico 38
N. A. Fernández López

Questions and Answers 40

Noticias 41

Febrero:

Nutritional survey of five rural Puerto Rican communities 42
Nelson A. Fernández, José C. Burgos, Conrado F. Asenjo, I. Rosa Rosa

Lucha antituberculosa: Cambios en normas y objetivos 53
J. Rodríguez Pastor

La *Monilia psilosis* de Ashford y la *Candida albicans* de hoy 61
Margarita Silva Hutner

Audiometric patterns in ear disease 65
Alexis O. Fernández

Calcifications in carcinoma of the pancreas 71
Bernardo J. Marqués, Laszlo Ehrlich

Carta 75
Héctor F. Rodríguez

Actualidades médicas 76

La prevención de los envenenamientos accidentales (Editorial) 78
Sidney Kaye

Noticias 80

Revista de libros 81

Marzo:

Carcinoma de la vejiga: Experiencia en el Hospital I. González Martínez 83
Silvio A. Aristizábal, Antonio Bosch, Zenaida Frías, Víctor A. Marcial

Insidious arsenic poisoning 90
Sidney Kaye

Thalassemia minor and infection 94
R. Menéndez Corrada, Aida Fernández, Amina R. de Sala

Supernormal phase of AV conduction, in a case of AV block of unknown etiology 99
Fernando A. Córdova, Elí A. Ramírez

Carta 104
A. Hernández Torres

Una gran alternativa y cuatro sacrificios (Editorial) 106
A. L. Rodríguez Rosado

Actualidades médicas 108

Noticias 110

Abril:

Rehabilitation of the injured workman 111
Herman J. Flax

Determination of stool fat: Comparison of Van de Kamer's and Friedner's methods 114
Marta Cancio, W. Torres de Rivera, Conrado F. Asenjo, R. Menéndez Corrada

Urinary calculi: Pathogenesis and therapeutic considerations (A review) 119
Julio V. Rivera

Phenylketonuria: A family study (Case Report) 133
Paul F. Crosby, Ana Navarro, Milton L. Matos

San Patricio Veterans Administration Hospital, An era is passing by . . . . (Editorial) 138
C. José Ferraioli

Invitación a un diálogo médico en Isabela 140
Jorge O. Just Viera

Noticias 141

Mayo:

Whipple's disease: Hematologic and metabolic aspects 142
Félix E. Tristani, Julio V. Rivera, Francisco Jaume

Obesity in Puerto Rican children and adults 153
N. A. Fernández López, José C. Burgos, Conrado F. Asenjo

Observations on investigations prior to schistosomiasis control 158
Peter Jordan

Protective factors from atherosclerosis in Puerto Rican veterans (Editorial) 161
Elí A. Ramírez

Cartas 163
José M. Torres Gómez, José E. Sifontes, José R. Pérez Anzalota, Jorge O. Just Viera

Actualidades médicas 166

Noticias 169

Junio:

An epidemiological study on coronary heart disease in Puerto Rico: The Puerto Rico Heart Health Program 174
Mario R. García-Palmieri, Manuel Feliberti, Raúl Costas, Angel A. Colón, Mercedes Cruz-Vidal, Marcelino Cortés-Alicea, Angel M. Ayala, Rafael Sobrino, Raquel Torres

Operational procedures at the Puerto Rico Heart Health Program Clinic 180
Raúl Costas Jr., Manuel Feliberti, Mario R. García-Palmieri, Angel A. Colón, Mercedes Cruz-Vidal, Marcelino Cortés-Alicea, Angel M. Ayala, Rafael Sobrino

The criteria for diagnosis of disease in a cardiovascular epidemiological study: The Puerto Rico Heart Health Program 184
Mario R. García-Palmieri, Raúl Costas Jr., Angel A. Colón

The electrocardiographic criteria in a population study on ischemic heart disease in Puerto Rico 190
Mario R. García-Palmieri, Raúl Costas Jr., Mercedes Cruz-Vidal, Marcelino Cortés-Alicea

Methods and quality control of laboratory determinations in a prospective study of ischemic heart disease 198
Angel A. Colón, Mario R. García-Palmieri, Emilio Nazario

Dietary interviews in an epidemiological study of coronary artery disease in Puerto Rico 202
Maresa Rodríguez, Raúl Costas, Jr., Edna Cordero, Jeanne Tillotson, Mario R. García-Palmieri

Morbidity and mortality surveillance in a prospective epidemiological study of coronary heart disease 207
Raúl Costas Jr., Mario R. García-Palmieri, Manuel Feliberti

Statistical procedures for quality control in the Puerto Rico Heart Health Program 212
Raquel Torres, Raúl Costas Jr., Mario R. García-Palmieri

Appendix 216

Julio:

Pituitary tumors in mice injected with Delestrogen 236
Arturo A. Ydrach

Blood alcohol levels and fatal traffic accidents 244
Sidney Kaye

Pregnancy after cardiac surgery 250
Francisco X. Veray, Juan J. Hernández Cibes, Francisco Raffucci, Iván A. Pelegrina

Práctica de grupo: Modalidad en la prestación de servicios médicos 258
Onán E. Pérez

Consumption coagulopathies: A review 264
C. H. Ramírez-Ronda

El médico y los accidentes automovilísticos (Editorial) 272
V. Bernal y del Río

Protección de la salud en un mundo que se achica (Editorial) 273
R. Rodríguez-Molina

Carta 275
Howard Schneider

Actualidades médicas 276

Noticias 279

Agosto:

Mammary cosmetic surgery 280
Alberto E. Sánchez

Epidemic erythema infectiosum in Adjuntas, Puerto Rico 286
William D. Clark, Lynn H. Ratner, Rosendo Martínez, Julio Colón

Comprehensive statewide planning: A rehabilitation blueprint for 1975 290
Anthony S. DeSimone

Congenital factor XIII deficiency: Report of two cases 294
Jean Fradera, Jenaro Haddock, E. Pérez-Santiago, Norman Maldonado

Hyperthyroidism and myocardial infarction 300
G. R. Martínez Rovira, Lillian Haddock, Ryan Crenshaw

¿Quién se robó las tortas? (Editorial) 305
Jorge O. Just Viera

Actualidades médicas 307

Noticias 308

Septiembre:

XI Congreso Panamericano de Gastroenterología:

Asociación Interamericana de Gastroenterología 309
Ignacio Vélez Escobar

Resúmenes para el trabajo científico:
Hígado (Liver) 311
Estómago-Duodeno (Stomach-Duodenum) 318
Microbiología y Parasitología (Microbiology and Parasitology) 327
Esófago (Esophagus) 332
Intestino delgado (Small intestine) 336
Colon (Colon) 342
Endoscopía (Endoscopy) 344
Misceláneos (Miscellaneous) 346

Editoriales:
Undécimo Congreso Panamericano de Gastroenterología 349
Federico Hernández Morales

Bienvenidos 350
Julio V. Rivera

Octubre:

67a. Convención Anual de la Asociación Médica de Puerto Rico:

Resúmenes de trabajos presentados en el Programa Científico 351

Leyes que regulan la práctica de la medicina en Puerto Rico 366

Registro de hospitales y casas de salud 378

Exhibiciones científicas y técnicas 391

In memoriam 393

Editorial: Al final de un año 394
Martín A. Iguina Mora

Noticias 395

Noviembre:

Medical therapy of dissecting aneurysm of aorta 397
Francisco Olazábal Jr., Luis G. Borrego

Open heart surgery at the San Juan City Hospital 402
E. A. Defendini, J. O. Just Viera, J. L. Rodríguez-Pagán

Frequency ofRubella antibody in Puerto Rican adults 406
D. Méndez Cashion, John L. Sever, Rubén Nazario, Mary R. Gilkeson

Diagnosis of inborn errors of metabolism 409
Lewis A. Barness

Fracture dislocation of the ankle with fixed displacement of the fibula behind the tibia 412
E. Blas Ferraiouli, Rafael Fernández

A reference file: The easy way 414
Elí A.Ramírez

Actualidades médicas 416

Diciembre:

Epidemiology of bundle branch block in Puerto Rico 418
Ramón M. Suárez, Ramón M. Suárez, Jr.

The captive psychiatrist 425
John L. Simon

Discurso: ¿Hacia dónde vamos? 429
Martín A. Iguina Mora

Non-union of fractures of the forearm in adults, prevention and treatment 432
E. Blas Ferraiouli

Post-operative infection in dogs 436
E. A. Santiago Delpín, G. Ramírez Schon, P. Rodríguez Millán, F. E. Oliveras, V. Pérez Cintrón

Editorial: Diálogo y Acción 440
E. A. Montalvo Durand

Nota biográfica de E. A. Montalvo Durand 442

Noticias 443

Contenido Volúmen 61 448

Indice de autores 456

Indice de materias 459

Alvarez de Choudens, J. 25
Aristizábal, Silvio A. 83
Asenjo, Conrado F. 42, 114, 153
Ayala, Angel M. 174, 180

Barness, Lewis A. 409
Berlingeri, José A. 35
Bernal y del Río, V. 272
Blanco Herrera, J. 21
Borrego, Luis G. 397
Bosch, Antonio 83
Burgos, José C. 42, 153

Cáceres de Costas, Margarita 1
Cancio, Marta 114
Colón, Angel A. 174, 180, 184, 198
Cordero, Edna 202
Córdova, Fernando A. 9, 99
Cortés Alicea, Marcelino 174, 180, 190
Costas Jr., Raúl 174, 180, 184, 190, 202, 207, 212
Crosby, Paul F. 133
Cruz Vidal, Mercedes 174, 180, 190

Defendini, E. A. 402

Ehrlich, Laszlo 35, 71

Feliberti, Manuel 174, 180, 207
Fernández, Aida 94
Fernández, Alexis O. 65
Fernández, Nelson A. 42
Fernández López, N. A. 38, 153
Fernández, Rafael 412
Ferraioli, C. José 138
Ferraiouli, E. Blas 412, 432
Flax, Herman J. 111
Frías, Zenaida 83

García-Palmieri, Mario R. 174, 180, 184, 190, 198, 202, 207, 212
Gilkeson, Mary R. 406
González Lebrón, A. del C. 17

Hernández Cibes, Juan J. 250
Hernández Morales, Federico 349
Hernández Torres, A. 21, 104

Iguina Mora, Martín A. 394, 429

Jaume, Francisco 142
Jordan, Peter 158
Just Viera, Jorge O. 140, 163, 402

Kaye, Sidney 78, 90, 244

Lawrence Fleisher, T. 17

Maldonado, Norman 1
Marcial, Víctor A. 83
Marqués, Bernardo J. 71
Matos, Milton L. 133
Méndez Cashion, D. 406
Menéndez Corrada, R. 114
Monserrate, Juan R. 9
Montalvo Durand, E. A. 440

Navarro, Ana 133
Nazario, Emilio 198
Nazario, Rubén 406

Olazábal, Francisco 397
Oliveras, F. E. 436
Orta, Enrique 1

Pelegrina, Iván A. 250
Pérez, Onán E. 258
Pérez Anzalota, José R. 163
Pérez Cintrón, V. 436

Raffucci, Francisco 250
Ramírez, Elí A. 9, 99, 161, 414
Ramírez Ronda, C. H. 264
Ramírez Schon, G. 436
Reyes, Félix M. 9
Rivera, Julio V. 119, 142, 350
Rodríguez, Héctor F. 75

Rodríguez, Maresa 202
Rodríguez Millán, P. 436
Rodríguez Molina, R. 273
Rodríguez Pagán, J. L. 402
Rodríguez Pastor, J. 53
Rodríguez Rosado, A. L. 106

Sala, Amina R. de 94
Santiago, Pedro J. 1
Santiago Delpín, E. A. 436
Schneider, Howard 275
Sever, John L. 406
Sifontes, José E. 163
Simon, John L. 425
Silva Hutner, Margarita 61
Sobrino, Rafael 174, 180
Suárez, Ramon M. 418
Suárez Jr., Ramón M. 418

Tillotson, Jeanne 202
Torres, Raquel 174, 212
Torres de Rivera, W. 114
Torres Gómez, José M. 163
Tristani, Félix E. 142

Vélez Escobar, Ignacio 309
Veray, Francisco X. 250

Ydrach, Arturo A. 236

Accidents, traffic, fatal, blood alcohol levels and 244
Actualidades médicas 76, 108, 166, 276, 307, 416
Adults and children, Puerto Rican, obesity in 153
Alcohol, blood levels, and fatal traffic accidents 244
Alternativa, una gran, y cuatro sacrificios (Editorial) 106
Aneurysm of the aorta, dissecting, medical therapy of 397
Ankle, fracture dislocation of the, with fixed displacement of the fibula behind the tibia 412
Antituberculosa, lucha: Cambios en normas y objetivos 53
Aorta, dissecting aneurysm of the, medical therapy of 397
Arsenic poisoning, insidious 90
Artificial placentation 277
Ashford, la *Monilia psilosis* de, y la *Candida albicans* de hoy 61
Asociación Interamericana de Gastroenterología 309
Asociación Médica de Puerto Rico, Convención Anual, resúmenes de trabajos presentados 351
Atherosclerosis, protective factors from, in Puerto Rican veterans 161
Audiometric patterns in ear disease 65
Automobile driver fatalities, behavioral factors in 166
AV conduction, supernormal phase of, in a case of AV block of unknown etiology 99

Behavioral factors in automobile driver fatalities 166
Blood alcohol levels and fatal traffic accidents 244
Bundle branch block in Puerto Rico, epidemiology of 418

Calcifications in carcinoma of the pancreas 71
Calculi, urinary: Pathogenesis and therapeutic considerations 119
Candida albicans de hoy, la *Monilia psilosis* de Ashford y la 61
Captive psychiatrist, the 425
Carcinoma de la vejiga: Experiencia en el Hospital I. González Martínez 83
Carcinoma of the pancreas, calcifications in 71
Cardiac surgery, pregnancy after 250
Cardiovascular epidemiological study, the criteria for the diagnosis of disease in a 184
Cartas 75, 104, 163, 275
Children and adults, Puerto Rican, obesity in 153

Children, iron requirements in 76
Colon 342
Consumption coagulopathies: A review 264
Contenido volúmen 61 448
Contraception, intrauterine, with the Saf-T-Coil 33.S 21
Coronary heart disease, an epidemiological study on 174
Cosmetic surgery, mammary 280
Criteria for the diagnosis of disease in a cardiovascular epidemiological study 184

Deficiency, congenital factor XIII: Report of two cases 294
Delestrogen, mice injected with, pituitary tumors in 236
Desnutrición del niño pre-escolar, impacto de la, en la economía de Puerto Rico 38
Diálogo médico en Isabela, invitación a un 140
Dietary interviews in an epidemiological study of coronary artery disease in Puerto Rico 202
Discurso del Presidente 429
Dislocation, fracture, of the ankle with fixed displacement of the fibula bwhind the tibia 412
Dissecting aneurysm of the aorta, medical therapy of 397
Dogs, infections in, post-operative 436

Ear disease, audiometric patterns in 65
Editoriales:
- La prevención de los envenenamientos accidentales 78
- Una gran alternativa y cuatro sacrificios 106
- San Patricio Veterans Administration Hospital, An era is passing by 138
- Protective factors from atherosclerosis in Puerto Rican veterans 161
- El médico y los accidentes automovilísticos 272
- ¿Quién se robó las tortas? 305
- Undécimo Congreso Panamericano de Gastroenterología 349
- Bienvenidos 350
- Al final de un año 394
- Diálogo y acción 440

Electrocardiographic criteria in a population study on ischemic heart disease in Puerto Rico 190
Electrolyte, sweat, concentrations in Puerto Rican children 17
Endoscopia 344
Envenenamientos accidentales, la prevención de los 78
Epidemic erythema infectiosum in Adjuntas, Puerto Rico 286
Epidemiological study on coronary heart disease 174
Epidemiology of bundle branch block in Puerto Rico 418
Erythema, infectiosum, epidemic, in Adjuntas, Puerto Rico 286
Esófago 332
Estómago-Duodeno 318
Evolution of medical service plans 276

Factor XIII deficiency, congenital 294
Fat, stool, determination of: Comparison of Van de Kamer's and Friedner's methods 114
Fatalities, automobile driver, behavioral factors in 166
File, reference: The easy way 414
Filtration of schistosomes from the portal blood in man 307
Five days per week 108
Forearm, fractures of the, non-union 432
Fracture dislocation of the ankle with fixed displacement of the fibula behind the tibia 412

Gastroenterología, XI Congreso Panamericano de 309

Heart disease, coronary, an epidemiological study on 174
Heart disease,in Puerto Rico, ischemic, the electrocardiogram criteria in a population study on 190
Heart surgery, open, at the San Juan City Hospital 402
Hematologic and metabolic aspects, Whipple's disease 142
Hígado (Liver) 311
Hospitales y casas de salud, registro de 378
Hyperthyroidism and myocardial infarction 300

Impacto de la desnutrición del niño pre-escolar en la economía de Puerto Rico 38
Inborn errors of metabolism, diagnosis of 409
Indice de autores 456
Indice de materias 459
Infarction, myocardial, hyperthyroidism and 300
Infection, thalassemia minor and 94
Infections in dogs, post-operative 436
Informe del Presidente 25
In memoriam 393
Iron requirements in children 76

Leyes que regulan la práctica de la medicina en Puerto Rico 366

Medical service plans, evolution of 276
Médico, el, y los accidentes automovilísticos (Editorial) 272
Metabolic aspects, and hematologic; Whipple's disease 142
Metabolism, diagnosis of inborn errors of 409
Methods and quality control of laboratory determinations in a prospective study of ischemic heart disease 198
Mice injected with Delestrogen, pituitary tumors in 236
Microbiología y parasitología 327
Monilia psilosis de Ashford, la, y la *Candida albicans* de hoy 61
Morbidity and mortality surveillance in a prospective epidemiological study of coronary heart disease 207
Mumps virus vaccine 76
Myocardial infarction, acute, rupture of the interventricular septum after 9
Myocardial infarction, hyperthyroidism and 300

Niño pre-escolar, impacto de la desnutrición del, en la economía de Puerto Rico 38
Nota biográfica: E. A. Montalvo Durand 442
Noticias 41, 80, 110, 141, 169, 279, 308, 395, 443
Nutritional survey of five rural Puerto Rican communities 42

Obesity in Puerto Rican children and adults 153
Open heart surgery at the San Juan City Hospital 402

Pancreas, carcinoma of the, calcifications in 71
Parasitología y microbiología 327
Phenylketonuria, a family study (Case Report) 133
Pituitary tumors in mice injected with Delestrogen 236
Placentation, artificial 277
Planning, statewide, comprehensive: A rehabilitation blueprint for 1975 290
Plans, service, medical, evolution of 276
Poisoning, arsenic, insidious 90
Portal blood filtration of schistosomes 307
Práctica de grupo: Modalidad en la prestación de servicios médicos 258
Pregnancy after cardiac surgery 250
Presidente, informe del 25
Presidente, discurso del 429
Procedures, operational, at the Puerto Rico Heart Health Program Clinic 180
Programa Científico, resúmenes de trabajos presentados, Asociación Médica de Puerto Rico 351
Protective factors from atherosclerosis in Puerto Rican veterans (Editorial) 161
Psychiatrist, captive, the 425
Puerto Rican adults, frequency of Rubella antibody in 406
Purpura, thrombocytopenic, idiopathic, in children 1

Questions and answers 40

Rehabilitation blueprint for 1975, comprehensive statewide planning 290
Rehabilitation of the injured workman 111
Resúmenes de trabajos presentados: Convención Anual de la Asociación Médica de Puerto Rico 351
Revista de libros 81
Rubella antibody in Puerto Rican adults, frequency of 406

Sacrificios, cuatro, y una gran alternativa (Editorial) 106
Saf-T-Coil 33.S, intrauterine contraception with 21
San Patricio Veterans Administration Hospital, an era is passing by (Editorial) 138
San Juan City Hospital, open heart surgery at the 402
Schistosomes, filtration of, from the portal blood in man 307
Schistosomiasis control, observations on investigations prior to 158
Septum, interventricular, rupture of the, after acute myocardial infarction 9
Statistical procedures for quality control in the Puerto Rico Heart Health Program 212
Stool fat, determination of: Comparison of Van de Kamer's and Friedner's methods 114

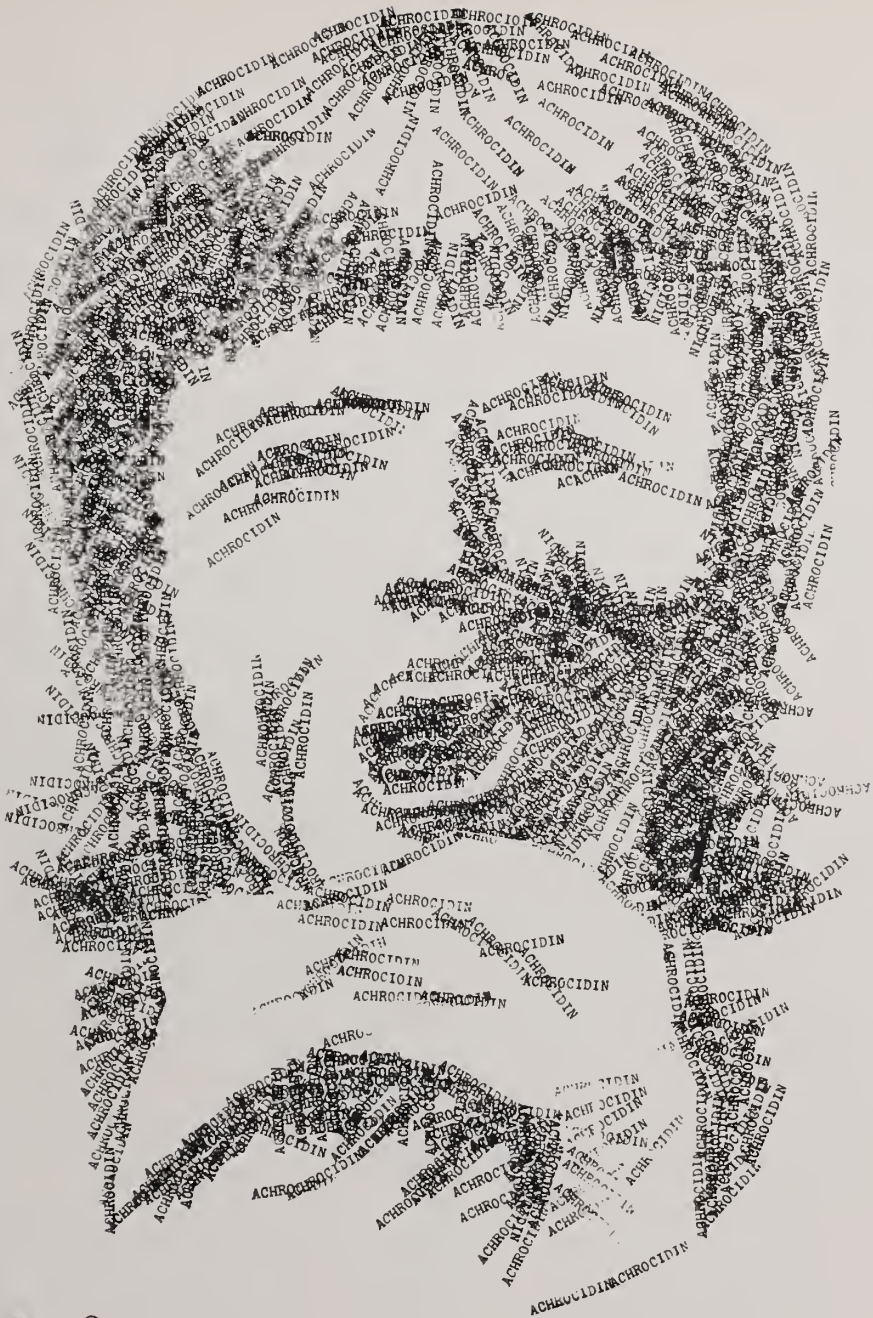
Supernormal phase of AV conduction in a case of AV block of unknown etiology 99
Surgery, cardiac, pregnancy after 250
Surgery, mammary, cosmetic 280
Surgery, open heart, at the San Juan City Hospital 402
Sweat electrolyte concentrations in Puerto Rican children 17
System, unit dose 109

Thalassemia minor and infection 94
Thrombocytopenic purpura in children, idiopathic 1
Tibia, behind the; fractured dislocation of the ankle with fixed displacement of the fibula 412
Tumors, pituitary, in mice injected with Delestrogen 236

Unit dose system 109
Urinary calculi: Pathogenesis and therapeutic considerations 119

Vaccine, mumps 76
Van de Kamer's and Friedner's methods, comparison of: determination of stool fat 114
Vejiga, carcinoma de la: Experiencia en el Hospital I. González Martínez 83
Veterans, Puerto Rican, protective factors, protective factors from atherosclerosis in 161

Whipple's disease: Hematologic and metabolic aspects 142
Workman, injured, rehabilitation of the 111



Achrocidin® Tablets and Syrup

Tetracycline HCl—Antihistamine—Analgesic Compound

Each tablet contains: ACHROMYCIN® Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Caffeine 30 mg.; Salicylamide 150 mg.; Chlorothen Citrate 25 mg.

ACHROCIDIN Tetracycline HCl—Antihistamine—Analgesic Compound Tablets and Syrup are recommended for the treatment of tetracycline-sensitive bacterial infection which may complicate vasomotor rhinitis, sinusitis and other allergic diseases of the upper respiratory tract, and for the concomitant symptomatic relief of headache and nasal congestion. For children and elderly patients you may prefer caffeine-free ACHROCIDIN Syrup. Each 5 cc contains: ACHROMYCIN Tetracycline equivalent to Tetracycline HCl 125 mg.; Phenacetin 120 mg.; Salicylamide 150 mg.; Ascorbic Acid (C) 25 mg.; Pyrilamine Maleate 15 mg.

Contraindications: Hypersensitivity to any component.

Warning: In renal impairment, since liver toxicity is possible, lower doses are indicated; during prolonged therapy consider serum level determinations. Photodynamic reaction to sunlight may occur in hypersensitive persons. Photosensitive individuals should avoid exposure; discontinue treatment if skin discomfort occurs.

Precautions: Drowsiness, anorexia, slight gastric distress can occur. In excessive drowsiness, consider longer dosage intervals. Persons on full dosage should not operate vehicles. Nonsusceptible organisms may overgrow; treat superinfection appropriately. Treat beta-hemolytic streptococcal infections at least 10 days to help prevent rheumatic fever or acute glomerulonephritis. Tetracycline may form a stable calcium complex in bone-forming tissue and may cause dental staining during tooth development (last half of pregnancy, neonatal period, infancy, early childhood).

Adverse Reactions: *Gastrointestinal*—anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. *Skin*—maculopapular and erythematous rashes; exfoliative dermatitis; photosensitivity; onycholysis, nail discoloration. *Kidney*—dose-related rise in BUN. *Hypersensitivity reactions*—urticaria, angioneurotic edema, anaphylaxis. *Intracranial*—bulging fontanels in young infants. *Teeth*—yellow-brown staining; enamel hypoplasia. *Blood*—anemia, thrombocytopenic purpura, neutropenia, eosinophilia. *Liver*—cholestasis at high dosage.

Upon adverse reaction, stop medication and treat appropriately.

Lederle LEDERLE LABORATORIES, A Division of American Cyanamid Company, Pearl River, New York 10965

534-9

ANUNCIOS

LOCALES PARA ALQUILAR

Alquilo 2 locales propios para especialistas médicos, por estar lado Hospital Sagrado Corazón. Inf. Tapia 427, Santurce, P. R., Tels. 724-6359 - 725-4372.

Se alquila local para dispensario médico - Tiene tres oficinas - Teléfono - Ave. Comercial Lomas Verdes. Para más información llamar al teléfono 767-5095.

Se alquila local segundo piso, para médicos - Más de 1,000 pies cuadrados - piso terrazo - tres cuartos - dos baños; luz, agua y parking incluídos. A varios minutos del Hospital del Maestro, Centro Médico y Auxilio Mutuo. Para más información, llamar al Dr. Cuevas, teléfonos 767-1004 o 764-2226.

OFICINAS PARA ALQUILAR

Se alquilan dos oficinas para médicos psiquiátras en Pilar Núm. 51, esquina Brumbaugh, Edificio Vargas, Río Piedras, Están semiequipadas. Sitio céntrico próximo a las calles principales de Río Piedras, el comercio, a la plaza y a la Universidad. Renta: $100.00 al mes incluyendo agua, luz y limpieza. Infórmese con: Amalia H. Vda. de Vargas, Apartado 20267, Río Piedras, P. R., Teléfono 766-7398.

WANTED

Internist, Board certified or eligible to work in a prosperous, growing area in South Texas. Will share modern medical building with Lab. and X-Ray facilities. Please contact Víctor Malagón, MD, FACP, FACC, 802 So. Main St., McAllen, Texas.

SE VENDE

Se vende Fluroscopio Westinghouse. Precio razonable. Inf: J. Ramírez-Ledesma, MD, Apartado 3013, Mayaguez, Puerto Rico, 00708.

DONACION

El Dr. M. A. Colón-Morales aceptará y agradecerá cualquier libro o equipo viejo de anestesia para el cual usted no tenga uso y desee disponer de él.

Favor llamar al teléfono 765-2918 o 765-3890 o escribir al GPO Box 4547 San Juan, Puerto Rico, 00936.

Inner Sites...

In Cystitis...Azo Gantanol® focuses analgesic-antibacterial activity where it counts



The mucosa: specific analgesia usually within 30 minutes

Azo (phenazopyridine HCl) effects specific mucosal analgesia, relieving the dysuria, discomfort and burning which are virtually always a part of acute urinary tract infections.

Interstitial fluids: ready diffusion of antibacterial

Gantanol (sulfamethoxazole) is readily diffused into interstitial fluids to provide efficient antibacterial activity at foci of infection. This distribution, plus continuous antibacterial levels in blood and urine, has afforded effectiveness in the majority of infections in which it has been used.

Blood and urine: therapeutic antibacterial levels within 2 hours for up to 12 hours

Gantanol (sulfamethoxazole) produces prompt and prolonged therapeutic levels, in both blood and urine, with convenient *b.i.d.* dosage. Clinical response is usually obtained within 24 to 48 hours. The wide antibacterial spectrum of Gantanol includes *E. coli* and a variety of other susceptible gram-negative and gram-positive pathogens in urinary tract infections.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Urinary tract infections with associated pain or discomfort when due to susceptible organisms; prophylactically in urologic surgery, catheterization and instrumentation.

Contraindicated in sulfonamide-sensitive patients, pregnant females at term, premature infants, newborn infants during the first three months of life, glomerular nephritis, severe hepatitis, uremia and pyelonephritis of pregnancy with gastrointestinal disturbances.

Warnings: Use only after critical appraisal in patients with liver damage, renal damage, urinary obstruction or blood dyscrasias. If toxic or hypersensitivity reactions or blood dyscrasias occur, discontinue therapy. In closely intermittent or prolonged therapy, blood counts and liver and kidney function tests should be performed.

Precautions: Observe usual sulfonamide therapy precautions including maintenance of an adequate fluid intake. Use with caution in patients with histories of allergies and/or asthma. Patients with impaired renal function should be followed closely as they may cause excessive drug accumulation. Occasional failures may occur due to resistant microorganisms. Not effective in virus and rickettsial infections.

Adverse Reactions: Headache, nausea, vomiting, urticaria, diarrhea, hepatitis, pancreatitis, blood dyscrasias, neuropathy, drug fever, skin rash, Stevens-Johnson syndrome, injection of the conjunctiva and sclera, petechiae, purpura, hematuria or crystalluria may occur, in which case the dosage should be decreased or the drug withdrawn.

ROCHE

Roche LABORATORIES

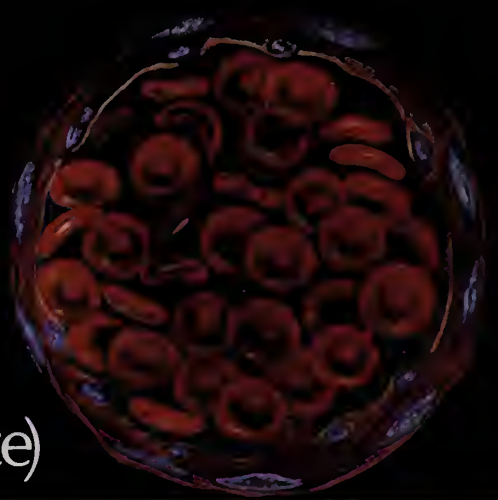
Division of Hoffmann - La Roche Inc.

Nutley, New Jersey 07110

Azo Gantanol®

(Each tablet contains 0.5 Gm sulfamethoxazole

Roniacol® Timespan®
(nicotinyl alcohol tartrate)



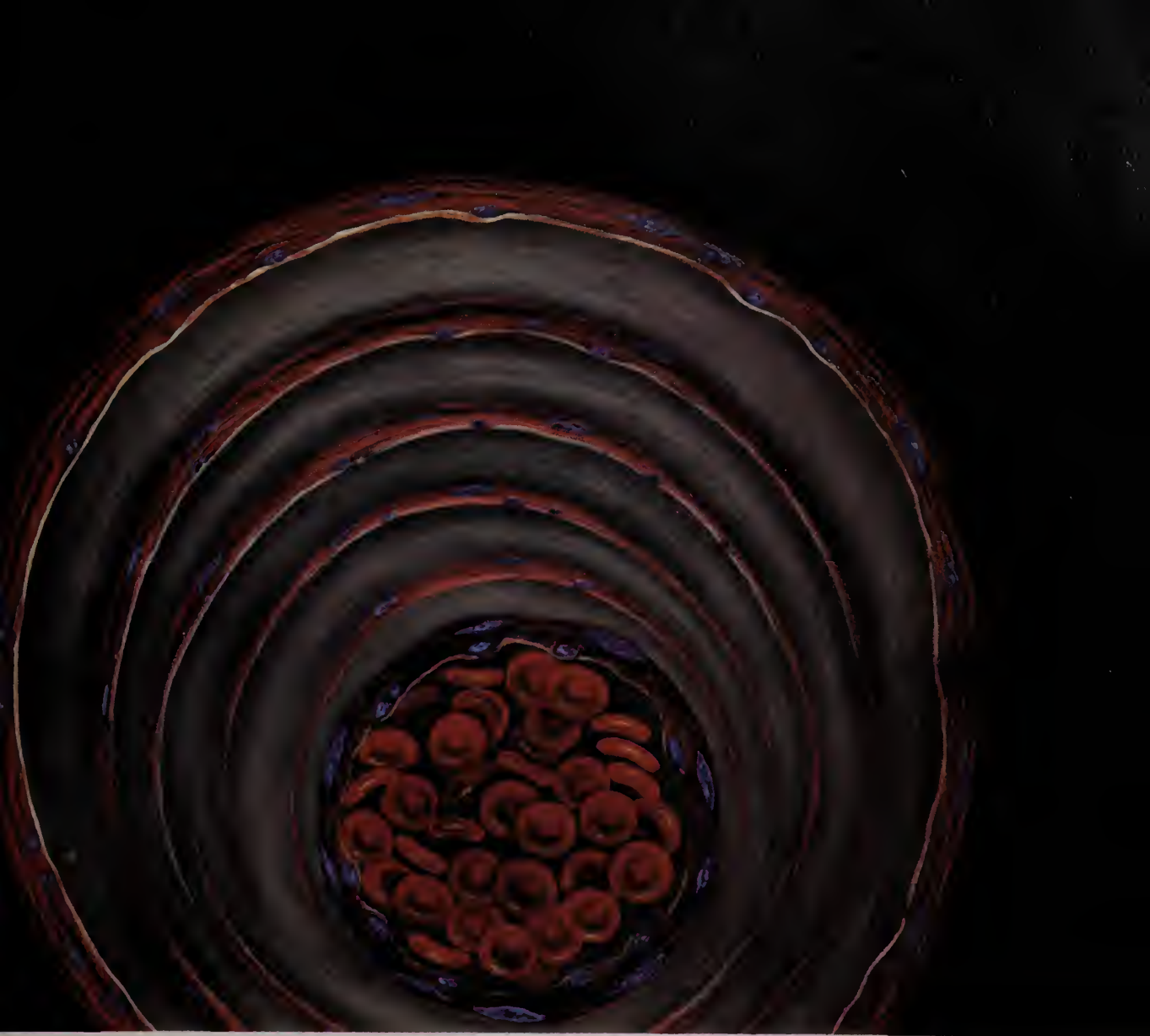
Because peripheral vasodilation is needed now... and must often be continued

Roniacol Timespan (nicotinyl alcohol tartrate) can make a significant contribution to effective treatment of peripheral vascular disorders. It is directed specifically toward improvement of peripheral blood flow, relief of ischemic symptoms, and the long-term management of these conditions.

Specific pharmacologic action—Roniacol (nicotinyl alcohol) acts selectively by relaxing smooth muscle of peripheral blood vessels. Onset of action is smooth and gradual, rarely causing severe flushing.

Relative freedom from side effects—Side effects that may occur occasionally with Roniacol seldom require discontinuation of therapy.

Prolonged, continuous drug release—Prolonged peripheral vasodilation is provided by sustained-release Roniacol Timespan (nicotinyl alcohol tartrate) Tablets. Part of the drug becomes available immediately, the remainder continuously over a period of up to 12 hours, and dilation of constricted peripheral vessels is usually maintained. Thus, with a single dose of medication, patients can enjoy the benefits of increased peripheral blood flow in ischemic extremities for up to 12 hours.



Smooth peripheral vasodilation from initial dosage...extended with simple, well-tolerated, b.i.d. dosage

he prolonged action of Roniacol Timespan nicotinyl alcohol tartrate) together with its ther benefits offer a therapeutically practical easure in the long-term management of eripheral vascular disease–advantages specially important for older patients.

efore prescribing, please consult complete roduct information, a summary of which llows:

dications: Conditions associated with eficient circulation; e.g., peripheral vascular sease, vascular spasm, varicose ulcers, ecubital ulcers, chilblains, Meniere's syn-rome and vertigo.

Caution: Roche Laboratories endorses caution in the administration of any therapeutic agent to pregnant patients.

Side Effects: Transient flushing, gastric disturbances, minor skin rashes and allergies may occur in some patients, seldom requiring discontinuation of the drug.

Dosage: 1 or 2 Timespan Tablets—150 mg nicotinyl alcohol in the form of the tartrate salt—bottles of 50 and 500.

ROCHE

Roche
LABORATORIES
Division of Hoffmann - La Roche Inc.
Nutley, New Jersey 07110

Art is a conception of peripheral vasodilation.

A once-popular treatment for back pains was to have the seventh son of a seventh son stand or walk on the patient's back.



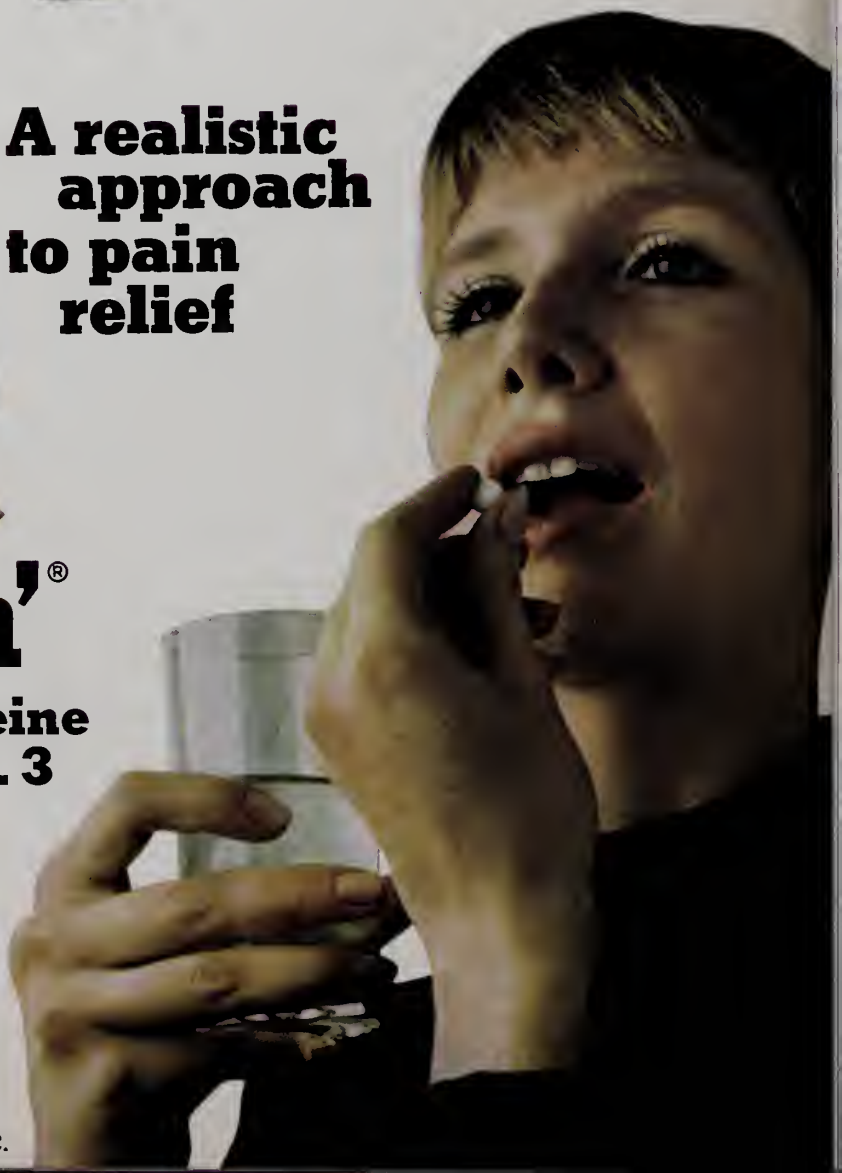


The pain of earache was allegedly relieved by holding a hot roasted onion to the ear.

For headache, a sovereign remedy was to wear a snakeskin round one's head.



A realistic approach to pain relief



'Empirin'®

Compound with Codeine Phosphate gr. 1/2 No. 3

Each tablet contains:
Codeine Phosphate gr. 1/2 (Warning—May be habit forming), Phenacetin gr. 2 1/2, Aspirin gr. 3 1/2, Caffeine gr. 1/2.

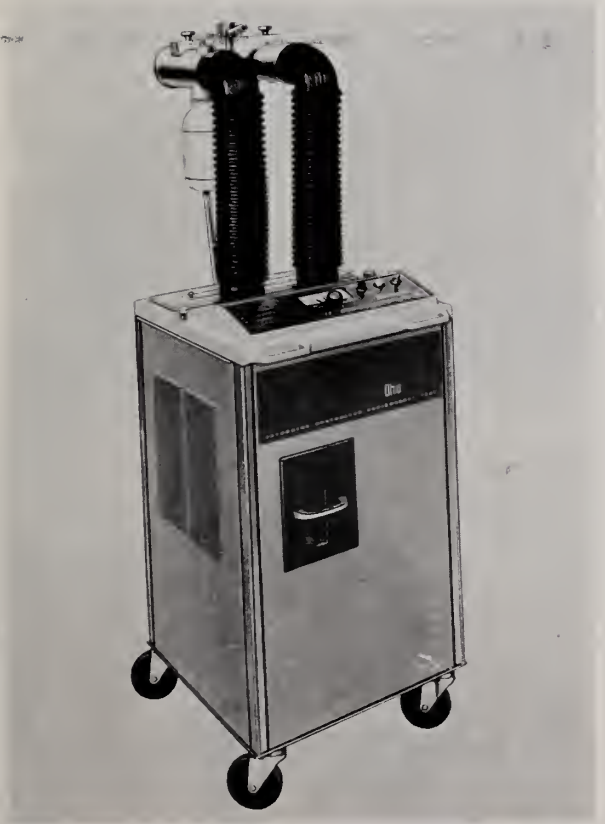
keeps the promise of pain relief

'B.W. & Co.' narcotic products are Class "B", and as such are available on oral prescription, where State law permits.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.

It's a better world...

inside the Ohio Controlled Environment Tent



It's much more than just an "oxygen tent." It's a world where temperature, oxygen concentration, humidity, and air cleanliness are carefully regulated. It's a world that is compatible with all types of beds, including pediatric cribs. It's a world with a "fail-safe" oxygen system and a design that combines user convenience with superior care, comfort, and benefits for post-operative, allergic, and burn patients as well as patients with respiratory difficulties.

For complete details write for Catalog 9861.

general gases & supplies corp.

Jaspe No. 21 Centro Comercial Villa Blanca
Caguas, P. R. 743-6595

Barbosa No. 11
Bayamón, P. R. 785-6090

Intersección Ave. Central y Carr. Guaynabo
Guaynabo, P. R. 783-4515

Condominio Los Flamboyanes
Ave. 65th Infantería cruce Trujillo Alto
Río Piedras, P. R. 764-1940

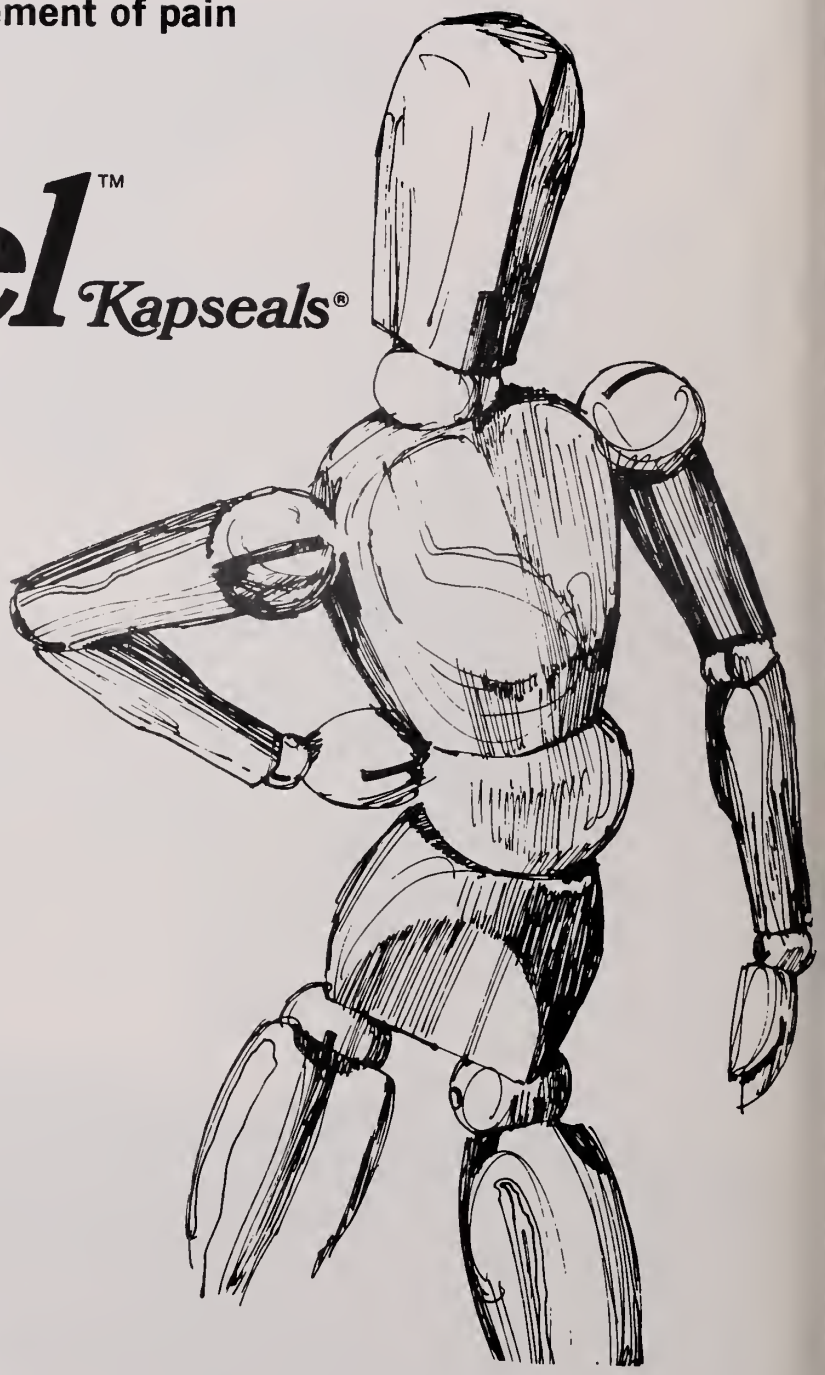
Calle Múñoz Rivera esq. Ave. Expreso
Ponce. P. R. 843-0425

Manuel Camuñas No. 10
Urb. Industrial Tres Monjitas
Hato Rey, P. R. 765-7445

NEW . . . for effective management of pain

Ponstel™ Kapseals®
(mefenamic acid)

a nonnarcotic oral analgesic



PARKE-DAVIS



65th. Infantry Road Km. 13.4, Carolina, P. R. — Tel. 769-3131

WARNER-LAMBERT, Ltd. - Distributor of:

WC WARNER-CHILCOTT

DR DIAGNOSTIC REAGENTS

TPC TEXAS PHARMACAL COMPANY
AN AFFILIATE OF
WARNER-CHILCOTT LABORATORIES

Los pacientes obstétricos o post-quirúrgicos que requieren un método seguro para elevar su hemoglobina, recibirán tanto hierro (250 mg.) de una inyección de 5 c.c. de IMFERON como el que contiene una pinta (500 c.c.) de sangre fresca. El IMFERON (inyección de hierro dextrán) es menos costoso y evita los bien conocidos peligros que entraña la transfusión de sangre total. En los pacientes que no pueden tomar hierro o en aquellos en quienes no se puede confiar que lo hagan, el IMFERON (inyección de hierro dextrán) suministra rápidamente el hierro necesario para los depósitos de reserva.

UNA PINTA DE SANGRE NO PROPORCIONA MAS HIERRO

QUE UNA AMPULA DE 5 cc. DE



IMFERON

(inyeccion de hierro dextran)

LAKESIDE LABORATORIES, INC.
Milwaukee, Wisconsin 53201, U.S.A.

LAKESIDE

PRODUCTOS PARA PACIENTES QUE UD. VE A DIARIO

RESUMEN: ACCION E INDICACIONES: Una sola dosis de IMFERON (inyección de hierro dextrán) produce una alza apreciable de la hemoglobina y una serie completa de inyecciones restituye efectivamente los depósitos de hierro. El IMFERON está indicado únicamente en casos diagnosticados de anemia ferropriva, en los que resulta inefectiva o poco práctica la administración de hierro oral. Tales deficiencias de hierro pueden incluir: pacientes en el último trimestre de gestación; pacientes con trastornos gastrointestinales o en vías de recuperación de intervenciones quirúrgicas del tracto gastrointestinal; hemorragias crónicas con pérdidas de hierro continuas y masivas que no responden rápidamente al hierro oral; pacientes refractarios a transfusiones como fuente de hierro; niños con anemia hipocrómica; pacientes en quienes no se puede confiar que tomen hierro oral.

COMPOSICION: El IMFERON (inyección de hierro dextrán) es una solución bien tolerada de complejo de hierro-dextrán que proporciona el equivalente a 50 mg. de hierro elemental por cada cc. La solución contiene 0.9% de cloruro de sodio y su pH varía entre 5.2 y 6. El frasco-ámpula de 10 cc. contiene 0.5% de fenol como preservativo.

ADMINISTRACION Y POSOLOGIA: La dosis, basada en el peso corporal y gramos de hemoglobina en 100 cc. de sangre, varía desde 0.5 cc. para lactantes hasta 5 cc. para adultos, aplicada diariamente, en días alternos, o semanalmente. El requerimiento total en cada individuo es fácilmente determinado mediante la tabla de dosificación contenida en el prospecto. La inyección intramuscular profunda en el cuadrante superior externo de la región glútea, empleando la técnica trayectoria en Z (con desplazamiento lateral de la piel, previo a la inyección), asegura buena absorción y evita la coloración de la piel. Se recomienda una aguja de por lo menos dos pulgadas de largo para el adulto normal.

EFECTOS SECUNDARIOS: La incidencia de efectos secundarios sistemicos y locales es poco común. Puede ocurrir coloración de la piel. Una dosis excesiva, superior a la requerida, puede producir hemosiderosis. A pesar de que las reacciones alérgicas o anafilácticas son rarísimas, se han presentado ocasionalmente reacciones serias; tres reacciones fatales han sido atribuidas al IMFERON (inyección de hierro dextrán). Raras veces se ha reportado urticaria, artralgia, linfoadenopatía, náusea, jaqueca y fiebre. Se recomienda aplicar inicialmente una dosis de prueba de 0.5 cc.

PRECAUCIONES: Si hay reacción de sensibilidad a la dosis de prueba no deberá administrarse el fármaco. El IMFERON (inyección de hierro dextrán) deberá administrarse únicamente por vía intramuscular profunda. La inyección deberá solamente aplicarse en el cuadrante superior externo de la región glútea, y no en el brazo u otras áreas. El riesgo de carcinogénesis en seres humanos es insignificante cuando se emplea el IMFERON (inyección de hierro dextrán) en la forma recomendada.

CONTRAINDICACIONES: El IMFERON (inyección de hierro dextrán) está contraindicado en pacientes con sensibilidad comprobada al complejo de hierro dextrán. Por estar destinado exclusivamente a la terapia de las anemias ferroprivas, no deberá utilizarse en el tratamiento de otras anemias.

PRESENTACION: Ampulas de 2 cc. cajas de 10; ámpulas de 5 cc. cajas de 4; frasco-ámpulas de 10 cc. de dosis múltiple.

for the patient who has "everything"...



Cheracol® Capsules

for temporary relief of minor aches, pains, headache and stuffy nose due to the common cold

Each capsule contains:

Chlorpheniramine Maleate	2 mg.
Orthoxine® (methoxyphenamine) Hydrochloride	25 mg.
Aspirin	324 mg. (5 grs.)
Caffeine Anhydrous	32.4 mg. (½ gr.)

Indications: Temporary relief of symptoms of common cold. Not recommended for children under 12 years.

Warnings: Frequent or prolonged use may cause nervousness, restlessness or drowsiness. Patients should not drive or operate machinery while taking this medication. Use with caution in patients with high blood pressure, heart disease, diabetes or thyroid disease.

Dosage: One capsule every 4 hours. Not more than four capsules should be taken in 24 hours.

Supplied: Available in packages of 24 capsules.

---

also available:

Cheracol D® Syrup

for temporary relief of coughs due to common colds and minor throat irritations

Each fluid ounce contains:

Dextromethorphan Hydrobromide	1/10 gr. (60 mg.)
Chloroform*	2 grs.
Glyceryl Guaiacolate	1⅔ grs.
Ammonium Chloride	8 grs.
Antimony Potassium Tartrate	1/12 gr.
Alcohol	3%

with white pine and wild cherry bark

*Some loss of chloroform is unavoidable.

Dosage: *Adults* – 1 to 2 teaspoonfuls. *Children 6 to 12 years* – ½ to 1 teaspoonful. *Children 2 to 6 years* – ½ teaspoonful. Repeat in four hours, if necessary, but not more than four times in 24 hours.

This preparation should not be administered to children under two years of age unless directed by a physician.

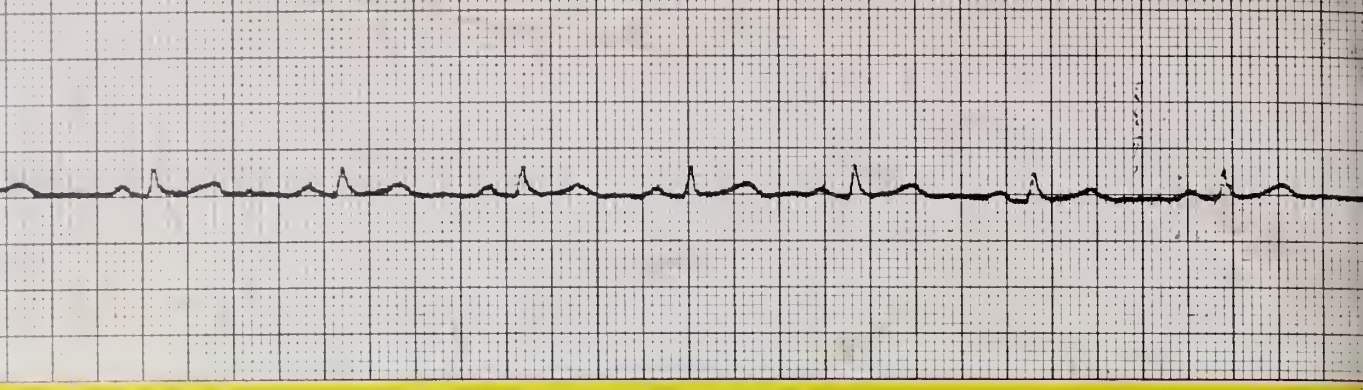
Supplied: Bottles of 2 and 4 fluid ounces.

© 1969 BY THE UPJOHN COMPANY

693 PR 5354.1

UPJOHN INTER-AMERICAN CORPORATION
CAPARRA/PUERTO NUEVO

Upjohn



When disease is ruled out and psychic tension is implicated

Valium® (diazepam) helps relax the patient and relieve his somatic symptoms

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.



Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110